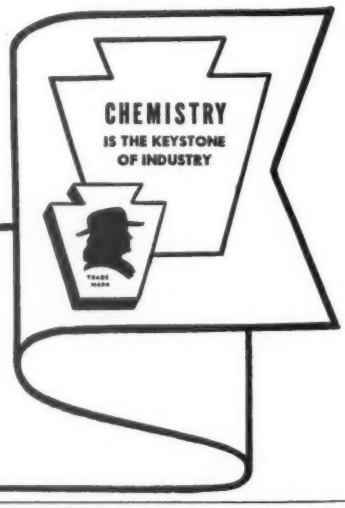
Technology
ATTENTION!
PULP AND PAPER MILL WORKERS
The War Manpower Commission has classified Pulp and Paper Manufacturing as an ESSENTIAL INDUSTRY
YOUR JOB IS INCLUDED
This means that the Federal Government considers that Pulp and Paper Mill Workers are employed in an Essential War Industry.
Directive No. 1 of the War Manpower Commission contains the following statement:
"Essential activities include (1) essential war activities, (2) any activity required for the maintenance of essential activities, and (3) any activity essential to the maintenance of the National safety, health or interest."
As they are operating during the emergency, the pulp and paper mills on the Pacific Coast include all three forms of essential activities. The vital sub-contract war production in the shops and most of the basic production of pulp and paper, container board, and converted products are essential war activities. Direct orders from the Government and other United Nations for domestic use, or lease-lend purposes, extend through practically the entire range of products made in all the mills on the Pacific Coast. In addition to these direct Governmental uses, an extremely large portion of the output of the mills as a whole is being taken and used by other war industries such as shipyards, airplane plants, munitions plants, arsenals and food processing plants.
By these standards the activities of the Pacific Coast Pulp and Paper Mills, from the handling of incoming raw materials to the shipment of outgoing products, including production, maintenance, and service, are clearly within the definition of essential activities.
The following statement by the undersigned Government Officials is called to the attention of all Pulp and Paper Mill Workers:
"The Pulp and Paper Industry is doing work essential to the War Effort. The workers in this industry will be considered for Occupational Deferments in the same manner as employees in any other essential activity. It is the patriotic dufy of all workers in this industry to remain on their present Pulp and Paper Mill Jobs until further Notice."
GENERAL H. G. WINSOR
Director for Washington and Oregon
War Manpower Commission
COLONEL WALTER J. DeLONG, Director
Selective Service for Washington
A. F. HARDY, Director
U. S. Employment Service for Washington
Vol. 16 • No. 9
PACIFIC Pulp & Paper INDUSTRY
SEPTEMBER • 1942

USE IT WISELY · HANDLE IT CAREFULLY · RETURN EMPTY EQUIPMENT PROMPTLY!

Liquid chlorine is an *essential* war material. Tremendous quantities are called for—to fill many urgent, *vital* war demands. To meet our obligations in emergency war orders and public health needs, we have expanded our production. But the supply for many normal uses is still strictly limited.

By efficient handling of chlorine for civilian needs, you can aid directly in the great national war effort. You can cooperate further by returning empty chlorine equipment promptly.



PENNSYLVANIA SALT
MANUFACTURING CO. OF WASHINGTON
Chemicals
TACOMA, WASHINGTON

Pacific Pulp & Paper Industry is published once a month, at 71 Columbia St., Seattle, Wash. Subscription: U. S., $4.00; Canada, $4.50; other countries, $5.00
Entered as second class matter May 20, 1927, at the Postoffice at Seattle, under the Act of March 3, 1879.

PROPERTY OF SEATTLE PUBLIC LIBRARY

Pacific PULP & PAPER Industry

The Journal of the Pacific Coast Industry

SEPTEMBER • 1942

Vol. 16 — No. 9

MILLER FREEMAN
President

LAWRENCE K. SMITH
Manager

HARLAN SCOTT
Editor

KEMPER FREEMAN
Production Manager

MILLER FREEMAN, JR.
Circulation Manager

OFFICES

Seattle

PUBLISHING OFFICE
71 Columbia St.
Tel. MAin 1626

Portland

Louis Blackerby
1220 S. W. Morrison St.
Tel. AT. 8890

San Francisco

Dick West
121 Second St.
Tel. GA. 5887

Los Angeles

124 W. Fourth St.
Tel. MUtual 5857

SUBSCRIPTION RATES

United States	$4.00
Canada	$4.50
Other Countries	$5.00
Single Copies	$ .35
Review Number	$1.00

Pacific Coast Mills Declared Essential to War

Employees urged to stay on jobs by War Manpower Commission, Selective Service and U. S. Employment Service ... Given same draft deferment rights as in any other essential war industry ... Industry's contribution of manpower to other war industries to be based upon original joint labor-management plan approved for trial in Oregon and Washington labor stringency areas ... May set pattern for rest of country.

THE pulp and paper mills of the Pacific Coast placed in operation last month an original labor-management sponsored government approved plan for maximum contribution to manpower needs of war production in areas where the shortage of labor is severe. The plan, the first of its type, provides for the orderly allocation of skilled manpower from pulp and paper mills among other industries essential to war production. It is being tried with the approval and cooperation of the War Manpower Commission, the Selective Service Directors of Washington and Oregon, and of the United States Employment Service in the two states. Coincident with the adoption of the plan the Pacific Coast pulp and paper industry was declared an essential war industry by the War Manpower Commission.

If successful the plan may become the pattern for labor - management - government cooperation on manpower problems in other industries.

The problem which the plan is aimed to solve is the continued production of essential pulp and paper in areas where skilled manpower is apparently insufficient to keep both established and newly created war industries operating at maximum efficiency.

Briefly, the plan involves the following points:

1. Increased use of the time of present mill employees on war production subcontracts in the pulp and paper mill machine shops.

2. Granting leaves of absence with protection of seniority to especially skilled men selected by the U. S. Employment Service as being needed for specific jobs in other war industries.

3. Filling the vacancies created by all transfers to direct war productions, either in the mill shops or in other industries, without further burden on the available supply of men.

This will be accomplished by a combination of lengthening the work day and the work week and the replacement of men with women.

The foundation for the plan was laid in the supplemental agreement negotiated as of June 1, 1942, as an emergency amendment to the Uniform Labor Agreement between the Pacific Coast Association of Pulp and Paper Manufacturers and the International Brotherhood of Pulp, Sulphite & Paper Mill Workers and the International Brotherhood of Paper Makers. The plan was worked out in joint sessions of the manufacturers and the brotherhoods held in July and then taken to Washington for approval by the War Manpower Commission.

The Manpower Problem

● In proportion to its population the Pacific Coast, and the Pacific Northwest in particular, has been given the responsibility of contributing an exceptionally large share of war material production. Logs, lumber, pulp and paper, metals, planes, and ships, are major war products being contributed by the region.

"On a per capita basis," says The Wall Street Journal for September 8th, "two years of war contracts for the Pacific Coast have run to $910 as against $590 for the nation. How great the pace has been since Pearl Harbor on the Coast may be judged from the fact that in the seven months ended with June the prime contracts awarded in the area have represented no less than 57% of the total of such contracts since the beginning of the defense drive in June, 1940. In other words, almost $6 billion of prime war contracts have flowed to the Pacific Coast since Pearl Harbor out of a little more than $10.4 billion in the two years since the national defense drive began in mid-1940."

Despite the fact that a larger proportion of the area's population is already engaged in direct and indirect war material production, selective service quotas are applied upon the same basis as in other areas where the proportion of the men in war work is far lower. Available 1-A men are being rapidly exhausted and some draft boards in their efforts to meet the quotas assigned them have been taking men with other classifications. The draft is taking about 8,000 men per month out of the State of Washington. In July enlistments totaled 5,500. Only draft registerants are credited against the draft quotas. Enlistments of non-registered men are not credited against the quotas. Men with families have been warned repeatedly by draft officials through newspaper interviews that they must get into a war industry or be drafted.

What constitutes a war industry? There was no official definition. The average man thought only of the airplane plants and the shipyards as war industries. So loggers, sawmill men, pulp and paper mill men flocked to these plants regardless of their skills, urged on by hints of deferment and the higher hourly wage rates.

The result has been a manpower shortage all around. The shipyards called for more and more men partly because so many unskilled men are required to do a skilled man's work.

It is not feasible to bring in more men from other areas where there is little war industry because the housing problem is

acute. The next solution discussed was the complete closing down or severe curtailment of all Pacific Northwest industry that was not directly connected with war production. It was reasoned that men released who lived near the direct war industries would automatically go to work in the industries. At one time, not many weeks ago, it was proposed that all pulp and paper mills on Puget Sound be shut down and the Columbia River plants be reduced to skeleton operations.

Of course this suggestion was made without knowledge of the very great contribution the industry is making to the war program and upon the thinking that what was needed was more and more men. Numbers rather than skill was the criterion.

Thousands of men in the Pacific Northwest are not working at their highest essential skill, essential meaning those skills needed in war industries. A couple of years ago the State of Oregon sponsored a survey of skills and found many men working at occupations below their skills. Still more amazing are the results from studies of the first 250,000 occupational draft questionnaires made by the United States Employment Service in the State of Washington. Of this quarter of a million men 67,000 were found to be working below their highest essential skill. An employment service official ventures his opinion that if every man in Oregon and Washington was working at his highest essential skill there would be no labor shortage in industries essential to the war program.

In other words, an experienced log bucker or an expert machine tender is not contributing his maximum effort to the winning of this war by working at a semi-skilled job in a shipyard.

Envolvement of the Plan

● Realizing that skilled men rather than numbers were the key to the problem and that the pulp and paper industry had to prove the essentiality of its production to the war program, the officers of the two brotherhoods and representatives of the mill managements sat down and jointly considered the two problems. The meeting was held in Portland July 17th and the next day the following letter was prepared:

Portland, Oregon
July 18, 1942

Mr. Arthur Huggins, President
International Brotherhood of Paper Makers
Mr. John P. Burke, President
International Brotherhood of Pulp, Sulphite and Paper Mill Workers
Executive Committee of the Pacific Coast Association of Pulp and Paper Manufacturers

Gentlemen:

In accordance with the conclusions of the joint discussions on Friday, July 17, 1942, the Joint Committee appointed at that time has prepared the attached memorandum. Pending your approval the memorandum is entitled "TENTATIVE JOINT LABOR-MANAGEMENT PLAN FOR MAXIMUM CONTRIBUTION TO MANPOWER NEEDS OF WAR PRODUCTION BY PACIFIC COAST PULP AND PAPER MILLS."

It is the urgent request of the Joint Committee that the memorandum be treated as confidential until approved by the International Presidents and the Executive Committee of the Manufacturers Association, and also until completion of the memorandum (Exhibit A) describing the machine shop war production program, which is now being prepared.

It is also the hope of the Joint Committee that presidents Huggins and Burke will indicate to the Chairman of the Pulp and Paper Branch, War Production Board, that a plan has been tentatively prepared and is in process of consideration, and that the parties desire to have the plan considered by the Chief of the Branch. For this purpose it is suggested that an appointment be arranged with the Chief of the Branch for presentation and discussion of the plan by presidents Huggins and Burke, and Mr. A. R. Heron, representing the Pacific Coast Association of Pulp and Paper Manufacturers.

Subject to the convenience of the various parties, it is hoped that such appointment can be made for a date not later than July 27, 1942.

Yours very truly,

JOINT LABOR-MANAGEMENT COMMITTEE

Mr. John Sherman .. IBofPS&PMW
Mr. J. S. Killen ..... IBofPS&PMW
Mr. Iver Isaacson ... IBofPS&PMW
Mr. R. T. Drummond ..... IBofPM
Mr. Arthur Hannaford ..... IBofPM
Mr. B. L. Tidland ..... IBofPM
Mr. A. R. Heron ..... PCAofPPM
Mr. Nils G. Teren ..... PCAofPPM
Mr. R. S. Wertheimer .. PCAofPPM
Mr. Leo S. Burdon ..... PCAofPPM
Mr. C. Wylie Smith ..... PCAofPPM
Mr. W. S. Lucey ..... PCAofPPM

TENTATIVE JOINT LABOR-MANAGEMENT PLAN FOR MAXIMUM CONTRIBUTION TO MANPOWER NEEDS OF WAR PRODUCTION BY PACIFIC COAST PULP AND PAPER MILLS

● "As used in this memorandum, the word 'Brotherhoods' means the International Brotherhood of Paper Makers and the International Brotherhood of Pulp, Sulphite and Paper Mill Workers; the word 'Manufacturers' means the pulp and paper mills which are members of the Pacific Coast Association of Pulp and Paper Manufacturers.

"The representatives of the Brotherhoods and the Manufacturers have given serious thought to the responsibilties and problems of the industry in this area in relation to the manpower needs of the war production program.

"It is the joint objective of the Brotherhoods and the Manufacturers to conduct their affairs so as to make, in an orderly manner, the maximum contribution of manpower to war production.

"Such a contribution can be made by the engagement of the largest possible number of men now employed in these mills in 'labor stringency areas,' in direct war production. This involves forms, as follows:

"(a) Employment in the production of direct war items in the machine shops and other similar departments of the mills. This employment has already been well established and is rapidly expanding as indicated in a report attached hereto. (Exhibit A)

"(b) Employment in war production establishments, of present employees of these mills who have skills or abilities particularly needed in such establishments. It is important to the war production needs that such employment be planned in accordance with an orderly and comprehensive program. Such a program will involve many complications, questions of protection of seniority, and cooperation between the United States Employment Service, the Manufacturers and the Brotherhoods. Both the Manufacturers and the Brotherhoods are prepared to cooperate in developing such a program.

"(c) Employment in the normal processes of the mills for the production of pulp and paper for direct war needs. This result is not directly dependent on any special steps in labor - management cooperation.

"A further contribution can be made by curtailment of demands on the available labor supply for future employment of men in these mills. As vacancies are created by diversion of men to direct war production, by voluntary separations, by inductions into the armed services, or otherwise, this can be accomplished partially by lengthening the work-day and work-week, and partially by the employment of women for work previously performed by men.*)

"Paragraph V of the Supplemental Agreement now in effect between the Manufacturers and the Brotherhoods, sets forth the recognition by both parties that the requirements of war production and the armed services during the emergency may create shortages of workers. (Paragraph V is appended hereto as Exhibit B)

"The United States Government, acting through the agency of the War Manpower Commission, does from time to time designate certain districts as "labor stringency areas." Our understanding of a "labor stringency area" is defined as follows:

"'A "labor stringency area" is an area in which the potential demand for labor occurring in the immediately following months will be substantially in excess of the potential labor supply during the same period.'"

"Some of the pulp and paper mills of the Manufacturers are now in such designated areas. Others may later find themselves in such areas.

"Upon the sanction of recommendation of this program by governmental authority, it is the plan of both parties to effectuate the policies as outlined in this memorandum, through the use of the emergency provisions as per Exhibit B, in 'labor stringency areas' as they are from time to time designated.

Exhibit A

● "At the urgent request of the Pulp and Paper Branch of the War Production Board, the mills that are members of the Pacific Coast Association of Pulp and Paper Manufacturers undertook to make their shop and mechanical facilities available to war production work. Many difficulties hampered the beginning of this program. The membership found it necessary to organize quite thoroughly so that all facilities might be brought to the attention of prime contractors in the area. They engaged the services of an experi-

*Emphasis is ours—Editor.

enced manufacturer from the machine industry, on a full-time basis, as coordinator for this work. In addition, several Companies have delegated engineers, shop supervisors, and other well-equipped personnel to work with the coordinator on either a full-time or part-time basis as may be needed.

"A complete survey of the machine tools in all the mills was prepared in detail. This survey indicated the available hours, the nature, condition and adaptability of each machine tool, as well as the availability of skilled operators.

"Contributing to the availability of skilled men was the fact that a number of the larger mills had voluntarily undertaken programs of training and up-grading, in some cases as early as the beginning of 1941. This training program had as its original objective the preparation of men to fill vacancies created by the transfer of senior mechanics to direct defense industries, and also the preliminary training of junior mechanics so that they might be available for direct defense industries. Through this program, several hundred junior mechanics were receiving a combination of practical shop training and related Class instruction.

"The member mills adopted the uniform policy of endeavoring to fill every machine tool to capacity, based on utilization for 24 hours a day, seven days a week. They have adopted a general policy of performing this work on a non-profit basis, the benefit of this non-profit performance to accrue exclusively to the Government.

"Measurable results of the program were apparent for the first time for the month of June, 1942. During that month, 45,687 man-hours were devoted to the direct war production work. During that month, more than 40% of the theoretical machine time available was actually used. In addition to the machine tool operation, a large amount of non-machine work was performed, involving bench work, floor work, assembly and miscellaneous tool work.

"The program has developed so rapidly that during the month of July, the coordinator reports sufficient work available to utilize the maximum capacity of every machine tool in the shops of the member mills. He also reports that the operating ratio for the month of June, involving machine hours, on both machine work and floor and bench work, can eventually be increased by at least 300%. It is expected that this work will soon represent the equivalent of employment of 1000 men on a full-time basis.

"The availability of these production facilities has become extremely important to the prime contractors in the area. They point out the following advantages from their viewpoint:.

"1. The responsibility of the pulp and paper mill Companies.

"2. The immediate availability of trained and experienced personnel.

"3. The existence of completely experienced supervisory personnel, and established working relationships between men and supervisors in the shops.

"4. The convenient location of most of the mill shops.

"It is the sincere expectation of the representatives of both manufacturers and employees that the performance of this work in the shops at the various mills will constitute a contribution to the manpower needs of war production considerably greater than could be achieved by the transfer of an equivalent number of men from employment in these mills to employment in the plants of prime contractors. Such a transfer of men would still leave the necessity of the performance of this work in sub-contracting establishments outside the plants of the prime contractors and it is obvious that no other equally satisfactory and efficient sub-contracting facilities are available."

Exhibit B
Excerpts From 1942 Supplemental Agreement

"PARAGRAPH V—SCHEDULES OF SHIFTS AND DAYS OFF—(Refer to Section 11): It is recognized by both parties that the requirements of war production and the armed services during the emergency may create shortages of workers. To make possible the continued operation of the mill, the parties have agreed to the following:

"When required by such shortage of workers, the management is authorized (a) to change existing schedules of shifts and hours per shift, applying to jobs, departments or the entire plant; and (b) to change or suspend the designated day off provided in Section 11. In any case of such change, the procedure for consultation with the Union Standing Committee provided in Section 20 shall be followed."

Mr. Burke's Letter to the Locals

INTERNATIONAL BROTHERHOOD PULP, SULPHITE and PAPER MILL WORKERS
of the United States and Canada
Office of the
PRESIDENT-SECRETARY

TO THE LOCAL UNIONS IN THE PACIFIC NORTHWEST:

Dear Sirs and Brothers:

"No doubt you have heard of the desire of the War Manpower Commission to divert manpower from pulp and paper mills in the Pacific Northwest to war industries.

"I have been to Washington, D. C., twice in recent weeks for conferences with Mr. David Winton, Chief of the Pulp and Paper Division of the War Production Board, and also with representatives of the War Manpower Commission to consider this whole problem.

"It may come as a surprise to our members in the Pacific Northwest mills to learn that the War Manpower Commission has been seriously considering the closing down of a number of mills in the Pacific Northwest, so that the manpower in these mills would then seek employment in war industries.

"In order to cooperate with the government to the maximum extent in fighting the war, a Joint Labor-Management conference was held Friday, July 17, 1942, in the City of Portland, Oregon. Those participating in this conference were:

"For the Pacific Coast Association of Pulp and Paper Manufacturers
A. R. Heron
Nils G. Teren
R. S. Wertheimer
Leo S. Burdon
C. Wylie Smith
W. S. Lucey

"For the International Brotherhood of Paper Makers
R. T. Drummond
Arthur Hannaford
B. L. Tidland

"For the International Brotherhood of Pulp, Sulphite and Paper Mill Workers
John Sherman
J. S. Killen
Ivor Isaacson

"This joint committee drafted a plan for maximum contribution to manpower needs of war production by Pacific Coast Pulp and Paper Mills. Mr. Alexander Heron, representing the Pacific Coast Association of Pulp and Paper Manufacturers, Arthur Huggins, Persident of the International Brotherhood of Paper Makers, and I, representing the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, presented this plan to Mr. David Winton, Chief of the Pulp and Paper Division of the War Production Board, and to representatives of the War Manpower Commission August 5, 1942.

"Mr. Heron made a very fine presentation of the whole plan, and Mr. Huggins and I supported the arguments advanced by Mr. Heron that the pulp and paper industry in the Pacific Northwest could make a greater contribution to the war industries by adoption of this joint labor-management plan than would be the case if the mills were closed down altogether.

"I am pleased to be able to report to the locals in the Pacific Northwest that I have received a letter from Brigadier General Frank J. McSherry, Director of Operations of the War Manpower Commission, giving approval to this Joint Labor - Management Plan for diverting manpower from pulp and paper mills on the Pacific Coast to war industries, and directing that this plan be immediately put into effect on a trial basis.

"I am sending all local unions on the Pacific Coast a copy of the Joint Labor-Management Plan and a copy of the letter received from Brigadier General Frank J. McSherry. I am urging all of our local unions in the Pacific Northwest to cooperate fully in putting this plan into effect, because I am certain that the continued operation of many of the mills in the Pacific Northwest depends upon the successful application of this Joint Labor-Management plan for maximum contribution to manpower needs of war production by Pacific Coast pulp and paper mills."

Fraternally yours,
(Signed) JOHN P. BURKE
PRESIDENT-SECRETARY

The Poster

● Following the receipt of General McSherry's letter authorizing the trial of the plan, a statement was issued to the employees of the pulp and paper industry in poster form. This was signed by General H. G. Winsor, director of War Manpower Commission for Washington and Oregon; Colonel Walter DeLong, director, Selective Service for Washington; Colonel E. V. Wooton, director, Selective Service for Oregon; A. F. Hardy, Director, U. S. Employment Service for Washington; and L. C. Stoll, director, U. S. Employment Service for Oregon.

A reproduction of the poster appears on the cover.

Working of the Plan

● The operational details of the joint labor - management plan are still being formulated by the officers of the brotherhoods and the representatives of the mill managements. The procedure will follow roughly this outline.

Office of Emergency Management
WAR MANPOWER COMMISSION
Washington, D. C.
August 8, 1942

Chairman
PAUL V. McNUTT
Federal Security Administration

To:

Arthur Huggins, President
International Brotherhood of Paper Makers

John P. Burke, President
International Brotherhood of Pulp, Sulphite
and Paper Mill Workers

A. R. Heron, representing
Pacific Coast Association of Pulp and
and Paper Manufacturers

Gentlemen:

In response to advice from the War Manpower Commission of the need for diversion of manpower from pulp and paper mills on the Pacific Coast to war industries, you have presented a "joint labor-management plan for maximum contribution to manpower needs of war production by Pacific Coast pulp and paper mills."

The written outline of the plan has been given careful study. Details of its operation have been discussed with you by representatives of this agency. We are convinced that the plan has merit, and may have some advantages over other plans under consideration for the release of manpower from this and similar industries.

Accordingly, I request that you jointly undertake to put the plan into effect immediately on a trial basis in the following areas:

1. Within a distance of fifty miles from Seattle, Tacoma, and Bremerton, in the state of Washington.

2. Within a distance of fifty miles from Vancouver, Washington and Portland, Oregon.

The general areas described above have been determined by the War Manpower Commission to be areas of labor stringency. As additional areas of labor stringency are determined from time to time, it is requested that you extend the operation of the plan to such additional areas.

Advice will be issued to representatives of the United States Employment Service to cooperate in and utilize the plan as proposed by you. Further arrangements will be made through that Service for periodical reports to indicate the results of the plan in terms of contribution of manpower to war production.

Sincerely yours,

(Signed) Frank J. McSherry,
(Brigadier General—U. S. A.)
Director of Operations.

The Joint Labor-Management Committee is promptly determining the essential jobs and the critical skills of jobs in the pulp and paper mills. The information thus obtained will be used jointly by the U. S. Employment Service and the labor management committees in the mills in furthering the plan.

Need for the New Survey

● The need for men in Pacific Northwest war industries is acute. An immediate knowledge of the skills possessed by men in an industry, in each firm, in each county, is necessary to allocate manpower among war industries to keep them running at top speed. The processing of the occupational draft questionnaires has proved too slow. Hence the need to ask the men in the pulp and paper industry, in each mill, to quickly fill out another questionnaire, an exact duplicate of the occupational draft questionnaire. This will speed up enormously the classification of critical skills available and permit their allocation upon an orderly, intelligent basis.

Each questionnaire will be accompanied by the following notice:

Notice to Pulp and Paper Mill Employees In Washington and Oregon

"The War Manpower Commission for the United States has designated Pulp and Paper Manufacturing as an Essential War Industry.

"Labor and Management of pulp and paper mills on the Pacific Coast have worked out a plan for an orderly and constructive war manpower contribution by the Industry which plan has officially been approved by the War Manpower Commission, details of which have no doubt been made known to you by your Union Officers and Employers. Survey and study of the skills possessed by employees of pulp and paper mills will have to be made at once.

"Men with skills which they will not be using in their pulp and paper mill work may have opportunities to make important contributions to the increased war production which is so urgently needed.

"The United States Employment Service, one of the cooperating agencies in the plan, is responsible for the proper selection and placement of workers in all essential war industries, including the Pulp and Paper Industry. It is making this survey of the critical skills, of employees in your industry.

"We are asking the employers in the Pulp and Paper Industry to have each employee fill out and return to his employer the attached form so that we may have access to this information for use in carrying out our portion of the plan above referred to.

"We are also asking each employee to cooperate fully in expediting the survey.

A. P. Hardy, Director,
U. S. Employment Service of Washington

"The following statement by the undersigned Government Officials is called to the attention of all Pulp and Paper Mill Workers:

"THE PULP AND PAPER INDUSTRY IS DOING WORK ESSENTIAL TO THE WAR EFFORT. THE WORKERS IN THIS INDUSTRY WILL BE CONSIDERED FOR OCCUPATIONAL DEFERMENTS IN THE SAME MANNER AS EMPLOYEES IN ANY OTHER ESSENTIAL ACTIVITY. IT IS THE PATRIOTIC DUTY OF ALL WORKERS IN THIS INDUSTRY TO REMAIN ON THEIR PRESENT PULP AND PAPER MILL JOBS UNTIL FURTHER NOTICE."

GENERAL H. G. WINSOR,
Director for Washington and
Oregon War Manpower Commission.

A. F. HARDY, Director
U. S. Employment Service
for Washington.

COLONEL J. DeLONG, Director
Selective Service for Washington.

In Oregon the officials signing the notice will be those having jurisdiction in that state.

When the survey of skills is completed the work being done by men possessing critical skills will be examined. Critical skills are those from time to time defined by the U. S. Employment Service as in great demand and in which the greatest shortage exists. Men possessing critical skills and not working at them in a pulp and paper mill will be asked:

1. To shift to the job utilizing their critical skill within the mill if the mill needs men with that skill.

2. To go to work in another essential war industry where the critical skill possessed is needed. If the mill in which the men now work cannot use them at their highest critical skill they will be asked to work in another mill needing them or to transfer to another war industry.

The method can best be shown by example. Suppose it is found that an expert machinist is running a hand barker in a wood room. He will be asked to work in the mill machine shop if the shop is short of machinists. If the mill shop cannot use any more machinists he will be asked to work in the nearest essential war industry plant needing machinists.

What if the man declines to take a job utilizing his highest critical skill? Can he be forced to go? The answer is no. We do not have a labor draft. The request to work at his highest skill is an appeal to his patriotism.

He will also be told that if he works at his highest skill in an essential war industry, the mill machine shop or another machine shop, his employer can ask his deferment because of his skill and the shortage of machinists.

Suppose the machinist agrees immediately to go to work at his skill in another plant, as most men will do, he leaves the pulp or paper mill with the understanding that he can return when the emergency is over and retain his seniority, subject, however, to military leaves which take precedence. Upon leaving the mill for another war industry job he must satisfy these conditions. The call for him must come from the U. S. Employment Service in writing on a prescribed form showing the employer for whom he is going to work and the job he is to do.

He must continue working at his highest skill in an essential war industry and if he desires to transfer to another war plant the transfer must be sanctioned by the U. S. Employment Service. When the war job is terminated he must notify the mill within 10 days of his desire to return. This latter is not an arbitrary rule and exceptions will be made for circumstances beyond the individual's control, such as sickness.

To make up for the men who will leave the pulp and paper industry for other essential war work, work days and work weeks will be lengthened. Women will replace men where practicable. These adjustments will be carried out in the orderly manner provided for in the emergency clauses V and VI of the supplemental labor agreement agreed to as of June 1, 1942. These are quoted in full below:

V. SCHEDULES OF SHIFTS AND DAYS OFF

"It is recognized by both parties that the requirements of war production and the armed services during the emergency may create shortages of workers. To make possible the continued operation of the mill, the parties have agreed to do the following:

"When required by such shortage of workers, the management is authorized (a) to change existing schedules of shifts and hours per shift, applying to jobs, departments or the entire plant; and (b) to change or suspend the designated day off provided in Section 11. In any case of such change, the procedure for consultation with the Union Standing Committee provided in Section 20 shall be followed.

VI. EMERGENCY EMPLOYMENT OF WOMEN

1. "When it is necessary, women will be employed in jobs formerly held by men.

2. "When a woman completely takes over a job formerly held by a man, she will receive the rate of the job subject to the same probationary period provided for new women employees. The starting rate for such probationary period shall be 7½ cents less than the job rate applicable to her length of service with the Signatory Company.

3. "Where it is necessary to change materially the duties or responsibilities of a job filled by a man, so that it can be filled by a woman, the woman's rate shall apply to the modified job. Any disagreement as to whether the change in duties or responsibilties is 'material' will be referred to and decided by the Reference Committee herein provided. Pending the decision by such committee, the change will be initiated as proposed by management with the understanding that the decision of the committee is to be made retroactive.

4. "Women workers taking over men's jobs, either completely or in modified form, will acquire no seniority in such jobs.

5. "Women workers already employed on women's jobs who transfer from such jobs to take over men's jobs either completely or in modified form, will retain and accumulate their seniority in the women's jobs from which they transfer.

6. "A JOINT REFERENCE COMMITTEE will be established as follows:

(a) One representative of the I. B. P. M.

One representative of the I. B. P. S. & P. M. W.

One representative of the P. C. A. of P. & P. Mfgrs.

"The Joint Reference Committee shall adopt, by unanimous decision, standard recommendations for the initial guidance of mill managements and mill standing committees in determining whether men's jobs have been materially changed for the employment of women. Any case of disagreement referred to the Joint Reference Committee will be handled by the representative of the International Brotherhood concerned and the representative of the manufacturers."

Explanatory Meetings

To explain the procedure for the industry to release skilled manpower to other war industries, a series of explanatory meetings are being held in pulp and paper mill towns. So far these have been held at Portland, Vancouver, Washington, Longview, Everett and Shelton.

Attending these meetings are representatives of the local mill managements and the officers of the union locals. The meetings are divided into two parts. Explanations of the manpower problem and of the plan being tried are given by international officers of the unions, representatives of the United States Employment Service, the War Manpower Commission and the Pacific Coast Association of Pulp and Paper Manufacturers. Then follows the question period. John Sherman, fifth vice president of the International Brotherhood of Pulp, Sulphite & Paper Mill Workers, presides at the meetings.

The Selective Service Angle

● At these explanatory meetings some of the questions are relative to the relationship of the Selective Service Act to this War Manpower Commission approved joint labor management plan for the contribution of skilled manpower. Since the operation of the Selective Service System is decentralized through the local draft boards, the policies outlined by Washington headquarters are subject to varying interpretations when applied by local boards.

Further, the Selective Service System is in constant and rapid evolution due to the growing demands of the Army for men. Hence statements made today concerning industrial deferments from the draft are subject to change tomorrow, next week or next month. With this in mind the following questions and answers are offered only as a guide to the working of the joint labor-management plan for manpower contribution.

One thing the men want to know is what deferments will be given men in the pulp and paper mills. Will single men be given 2B and married men 3B? A man may be given a 2B or a 3B classification if his industry is an essential one, but there are no blanket classifications. These are forbidden by the Selective Service Act. Each man's classification represents a separate decision by the draft board at the time his name comes up for classification, and any change of classification or deferment is based upon his employer's request.

There is no automatic industry or job deferment. It is what a man does in his industry that determines his eligibility for deferment. Deferment when requested by the employer is considered for each man on the basis of his work in the essential industry.

A man in a critical job in the pulp and paper industry will be given more consideration than if he is in a non-critical job in the same industry or another essential war industry.

Some ask if a man can request his own occupational deferment. He cannot do it himself. The request must be made by his employer upon the proper form stating that his job is essential to the continued operation of the plant, and, at the time, he is irreplaceable due to a shortage of men of his skill.

To amplify. Suppose a mill had a machine tender, single and in good physical condition. The mill management

could ask for his deferment if no other machine tender was available. But, if the U. S. Employment Service had on its list an over draft age machine tender who was doing non-essential work, such as running a hamburger stand, the mill could not ask deferment for the first machine tender on the basis of his being irreplaceable. However, if there exists an over all shortage of machine tenders in the region, the employers of all could ask deferment for individuals.

The question was asked if the U. S. Employment Service would take a machine tender and put him in a shipyard if he is found to be a machinist, too. In the first place the U. S. Employment Service is not a police organization. It cannot force a man to make a change. It can only request him to make a change on the basis of helping to win the war. The direct answer to this question is no. Pulp and paper is an essential industry and the machine tender is essential to the operation of the industry. However, if he were not needed in the paper industry he would be asked to apply his skill as a machinist.

Should the Employment Service discover, in its study of the draft occupational questionnaires, that an experienced cook or machine tender was working as a cigar clerk, would it suggest to him that he return to the paper industry? If the mills are short of cooks or machine tenders, yes, he would be asked to return. The shift works both ways, into and out of the pulp and paper industry in the program to persuade every man to work where his skill will contribute the most to winning the war.

How many industries have been declared essential and where on the list is the pulp and paper industry, was another question that came up in the meetings. So far, the War Manpower Commission has declared 34 industries essential to the war program and there is no order of essentiality. Pulp and paper ranks just as high as any other. If an industry has been declared essential that means the government is saying it must keep running and must have enough men and women to operate sufficiently to meet its obligation to the war program.

The informing of the local draft boards that the pulp and paper industry had been declared essential is a point frequently raised in the meetings. As soon as the list of essential jobs in the pulp and paper industry is compiled the draft boards will be given copies and notified that the industry has been declared essential by the War Manpower Commission. This will be done within two or three weeks.

Over All Objective

● The over all objective of the War Manpower Commission through the United States Employment Service is the right man in the right job to win the war. The Joint Labor - Management Plan for the Maximum Contribution to Manpower Needs of War Production by Pacific Coast Pulp and Paper Mills aims to achieve the same objective.

This government agency has been charged with bringing order out of the chaotic labor situation which has been made more confused by the uneven operation of the Selective Service System, due in part to the absence until lately of a list of essential industries and essential jobs. We must have an adequate army. At the same time we must keep essential industries operating at the greatest possible efficiency.

To achieve the greatest possible efficiency in war industries skilled manpower must be quickly allocated to war industries in an orderly manner. To do this a Labor-Management War Manpower Committee for Oregon and Washington is being setup by the War Manpower Commission.

The manpower shift is on a cooperative basis. In the pulp and paper industry, labor and management have embarked on the foregoing plan of cooperation with the two government agencies in charge of manpower allocation. It must work. Should cooperative action fail a manpower draft by law would follow and in the interim more precious time would be lost.

Both Ends Against the Middle

THE success of the "joint labor-management plan for maximum contribution to manpower needs of war production by Pacific Coast pulp and paper mills," depends upon all around cooperation of the private and governmental groups involved.

There can be no question about the cooperation of labor and management in the Pacific Coast pulp and paper industry. That is a well established habit. These groups are already working closely to put the plan into action. Nor can there be any question of the cooperation of the War Manpower Commission working through the U. S. Employment Service, for this government agency is charged with allocating skilled men to war industries that they may produce at top efficiency. Labor, management and the War Manpower Commission are all working toward the same end, maximum production of necessary war materials.

Competing for war industry's manpower is the Selective Service System. It is charged with obtaining men for an enormous army. Up to the present time the national headquarters in Washington hasn't appeared to be interested in where these men came from just so long as the quotas were met by the local draft boards. General rules were stated regarding deferments for occupation in essential industries and for dependents, but the quotas have been the controlling factor. Local draft boards had to meet quotas and headquarters hasn't cared apparently whether its own rules for occupational and dependency deferments were broken.

We all agree that we must have an army large enough to do the job. We all agree, too, that this army must be supplied with the tools with which to do the job. This means that essential war industries cannot be crippled by the drafting of necessary men or the army's usefulness is impaired.

So far the situation has resembled the joint checking account of a husband and wife. Both can write checks as long as there is any money in the bank but eventually they must get together and decide whose checks are the more essential. Selective Service and the essential war industries have been writing checks on the nation's skilled manpower. The bank account is reported to be pretty low. It is time for cooperation.

The draft has hit the Pacific Coast war industries more severely than those in most other regions for, as pointed out in the article describing the manpower contribution plan, the Pacific Coast has a far greater responsibility for war production in proportion to population than other regions, yet the draft quotas are on the same basis as for the rest of the country.

To make the joint labor-management plan work, cooperation of the Selective Service System is essential. Possibly the solution will be found in closer coordination between the Selective Service System and the War Manpower Commission.

John Lobb Dies In Hospital

● John J. Lobb, assistant to the resident manager, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, died August 17th at St. Joseph's hospital in Vancouver. He was taken ill on August 8th and underwent two operations, the last on August 16th.

Prior to becoming associated with Crown Zellerbach Corporation at Camas in December, 1940, Mr. Lobb was affiliated with the Scott Paper Company of Chester, Pennsylvania. He had been with the Scott organization 28 years and was general superintendent of the paper company when he transferred to the Crown organization.

He is survived by his wife Ella, of Camas, and four daughters, Mrs. Helen Hayes, the Misses Anna, Margaret and Katheryn Lobb, all of Pennsylvania.

Hawley Employing Women in Machine and Converting Depts.

● Hawley Pulp and Paper Company, Oregon City, Oregon, inaugurated the policy of employing women in the plant on August first. By the end of the month there were 26 women workers employed in the company operations; five in the machine shop and 21 in the converting plant. It is expected that women will be employed in the finishing room and converting plant, as well as other departments in the near future.

The women wear uniforms of coveralls and a cloth hat to reduce the chance of clothing being caught in the machines.

J. A. Wilson, assistant mill manager, says the women employees are "doing a fine job every place we are employing them."

McEnry On Active Duty With the Navy

● James McEnry, assistant chief engineer in the steam plant, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, left for San Francisco, California, on August 24th, reporting for duty in the engineering division of the United States Navy as a lieutenant, senior grade.

Lieutenant McEnry has been a reserve officer since the last war when he served as a marine engineer on a ship convoying across the Atlantic. He was employed by the States Steamship Company for 12 years as chief engineer, much of which time was spent at sea in the Orient. He resigned in 1930 to accept a position in the Camas paper mill steam plant.

Lieutenant McEnry and Mrs. McEnry have two sons in the navy. They are Delmar and Tommy and are now serving on one of the ships of the fleet.

Ray Mullineaux has taken over the duties as assistant chief engineer of the steam plant during Lieutenant McEnry's absence.

Paper Table Cloth Maps Aid Arm Chair Strategists

● A Cleveland restaurant is reported to be using paper table cloths with war zone maps printed thereon. This pleases civilian "experts" and saves laundry bills.

Heron to Head Army Services of Supply Personnel

Director of Public and Industrial Relations, Crown Zellerbach Corporation and Rayonier Incorporated accepts call to war time duty / / / Given leave of absence / / / Elected Vice President Crown Zellerbach Corporation in August.

● Now it's Colonel Alexander R. Heron, and snappy salutes greeted the newly-commissioned officer when he appeared in uniform at the San Francisco offices of Crown Zellerbach Corporation, of which he is vice-president, on the day of his departure by plane for Washington, D. C., to assume his new assignment.

On military leave, he will serve the Army as chief of the civilian personnel branch, Service of Supply. En route, he stopped over in Chicago to attend an Army staff meeting.

The commission came as an unsolicited honor in recognition of Colonel Heron's remarkable record as industrial relations director of Crown Zellerbach Corporation and Rayonier Incorporated. During his eight consecutive years as representative of the Pacific Coast's entire pulp and paper industry in its relationship with the two international unions, not one hour of time has been lost due to a labor dispute.

It was nothing new for Colonel Heron to be going to Washington by plane, having more than 400,000 air miles already to his credit. Nor is government service a stranger to him. He has served the War Production Board as chairman of the Northern California Industrial Area, Labor Supply committee, and for the past 19 months has been active as district representative of the War Manpower Commission for training within industry.

He served as California's first State Director of Finance, appointed by Governor C. C. Young in 1927, resigned in 1930 to become associated with the Crown Zellerbach Corporation.

The colonel is consulting professor of industrial relations at Stanford University, and recently authored a book, "Toward Understanding in Industry," which has enjoyed wide circulation. It occupies a place among the 2500 volumes in his library at the family home, 2647 Piedmont Avenue, Berkley. Last month Colonel Heron was elected vice-president of Crown Zellerbach Corporation.

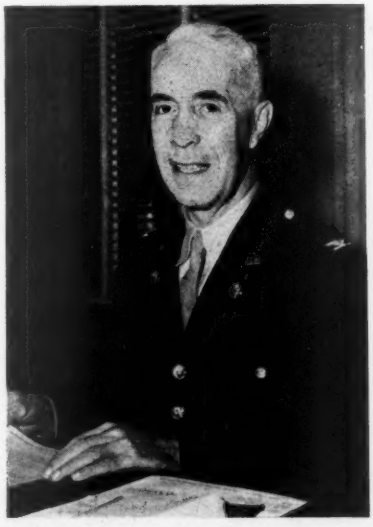
Colonel Heron's successor as director of industrial relations is his former assistant, another prominent figure in the pulp and paper industry, Frank A. Drumb, until recently resident manager of the Ocean Falls plant of Pacific Mills.

Mr. Drumb entered the industry in the Pacific Northwest in November, 1927, with Crown-Willamette Paper Company at Camas, after serving some years with the Wisconsin mills of the Consolidated Water Power & Paper Company.

He went to Ocean Falls as resident manager in May, 1933, and during his regime many important developments took place in equipment, capacity and products of the plant. About a year ago Mr. Drumb joined the industrial relations division of Crown Zellerbach in San Francisco.

Harcourt Now Major In Army Engineers

● Irl Harcourt, plant engineer, Fibreboard Products Inc., Stockton, California, was commissioned a major in the Army Engineers last month and reported immediately to a post in the eastern part of the country.



Colonel A. R. HERON, Chief, Civilian Personnel Branch, Services of Supply, U. S. Army

TAPPI To Continue Dinner Meetings

First of 1942-1943 series will be held at Everett October 6th ... Will hear paper on "A Quick Method of Viscosity Determination on Sulphite Pulp."

● The Pacific Section of TAPPI will carry on its educational work during the Fall and Winter of 1942-1943 in the belief that the discussion of common problems is of even greater value during war time.

The announcement that the regular evening dinner meetings would be continued was made by Clarence A. Enghouse, vice chairman of the Pacific Section, following a meeting of the Pacific Section officers and executive committee in Portland last month.

Everett, Washington will be the scene of the first meeting on the evening of October 6th. The dinner will be held at the Everett Golf & Country Club at 6 p.m. Harold W. Bialkowsky, technical director, Everett Mill, Pulp Division Weyerhaeuser Timber Co., is in charge of arrangements.

The November meeting will be held on the 3rd at Camas; the January 5th meeting at Longview; the February 2nd meeting at Tacoma; the March 2nd dinner at Portland; and, the April 6th dinner at Port Angeles.

Everett Program

● A paper on a timely and interesting subject, "A Quick Method of Viscosity Determination on Sulphite Pulp," will be presented by R. S. Hatch, research director, Weyerhaeuser Timber Co., Longview.

The second feature on the Everett program, a moving picture, "Deep Horizon," produced by the Texas Company, represents a broadening of the meeting program by the inclusion of a general interest subject. This picture covers the methods employed in locating and drilling oil wells. The third phase of the Everett program will be either a round table discussion on industry problems or a talk of general interest.

Vice chairman Enghouse plans to have all dinner meetings follow this general pattern; a technical paper, a motion picture and a talk on a general subject or a round table discussion.

Shibley Award Offered

● The executive committee voted to again offer the Pacific Section's Shibley Award of $50 for the best paper presented at the dinner meetings by a mill man. Papers submitted in the contest for the award which is made annually at the joint meeting of TAPPI and the Superintendents in June, are to be sent to Clarence A. Enghouse, vice chairman, Pacific Section of TAPPI, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., West Linn, Oregon. They should be submitted in quadruplicate.

The papers will be judged by officers and members of the executive committee on the following basis:

1. The amount of interest shown at the meeting where the paper is presented.
2. Presentation.
3. Technical value to the industry.

Papers may be on any phase of the pulp and paper industry. Papers dealing with engineering of chemical subjects are particularly desired.

Men who have not previously presented papers are urged to participate in the Shibley Award contest. Papers must be in the hands of the vice chairman at least 30 days before the meeting at which the paper is to be presented. Anyone planning to submit a paper not yet completed should write to Mr. Enghouse giving the title and a brief resume of the contents and the approximate date when it is expected the paper will be completed.

Attending the Portland meeting of the executive committee of the Pacific Section of TAPPI last month were: Edward P. Wood, chairman, technical director, Longview Mill, Pulp Division Weyerhaeuser Timber Company, Longview; Clarence A. Enghouse, vice chairman, assistant to the resident manager, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., West Linn, Ore.; Robert M. True, secretary-

---

EVERETT TAPPI DINNER MEETING

The first dinner meeting to be held by the Pacific Section of TAPPI will be at the Everett Golf & Country Club, Everett, Washington, Tuesday evening, October 6th at 6 p. m.

R. S. Hatch, Research Director, Weyerhaeuser Timber Company, Longview, will present a paper on, "A Quick Method of Viscosity Determination on Sulphite Pulp." A moving picture produced by the Texas Company, "Deep Horizon," will be presented. The third feature will be either a talk on a subject of general interest or a round table discussion of industry problems.

The Pacific Section Dinner Meeting Program for 1942-1943:

October 6th	**Everett**
November 3rd	**Camas**
January 5th	**Longview**
February 2nd	**Tacoma**
March 2nd	**Portland**
April 6th	**Port Angeles**

treasurer, General Dyestuff Corporation, Terminal Sales Bldg., Portland; Carl E. Braun, past chairman, vice president and mill manager, Hawley Pulp & Paper Co., Oregon City, Ore.; E. G. "Sid" Drew, member executive committee, chief engineer, Hesse - Ersted Iron Works, Portland.

Paper Flashlights? Don't Be Surprised

● Paper flashlights are on the way says the Wall Street Journal. Metal and plastics are both short, especially zinc, so manufacturers experiment with chemically coated reinforced paper.

Walt Jacoby Assisting G. H. Gallaway

● Walt Jacoby is acting assistant technical supervisor, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, assisting G. H. Gallaway, acting technical supervisor in the absence of F. A. Olmsted, who is temporarily in the San Francisco offices of the company.

Form Keymen Club At Camas

● Foremen and sub-foremen of Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, have recently organized the Keymen Club for the purpose of carrying on regular discussions of production and safety. The group meets twice monthly in the foremen's rooms at the plant.

This newly formed club held its first annual picnic on August 20th at Dead Lake, with 55 members attending. Walt Jacoby of the technical department and Ed Lownick, construction and maintenance, were initiated into the Keymen club at that time.

Membership in the Keymen club is confined to foremen and sub-foremen of all departments throughout the pulp and paper mill at Camas. There are 83 charter members. H. W. Dassel is secretary-treasurer.

Home Made Rotary Suction Box Cleans Felts, Reduces Wear

by E. H. TIDLAND*

● The construction of a rotary suction box for cleaning felts is relatively simple and can be built of materials readily available in most mills. These rotary suction boxes are not new and have been in use for years in many mills. However, many operators have never heard of them, so the scope of application is still wide.

The advantages of this type of box are:

1. It reverses the felt as it enters the box, opening it enough to free embedded particles of stock.
2. The roller carries the felt, eliminating much of the frictional wear that results from a conventional drilled or slotted box.

The dimensions given on the sketch are merely approximate, although they represent the construction of a box suitable for a machine of medium width. Ordinarily any brass roll that happens to be available will serve, providing it can be equipped with anti-friction or water lubricated bearings. The Shafer Bearing Sales Company makes bearings that are ideal for this purpose. To seal the ends of the roll and to protect the edges of the felt, a piece of apron cloth is placed over the box near the end of the roll. This apron cloth regulates the length of the suction area and can be changed readily if the felt narrows.

In constructing this box, care should be taken to make sure that the maple lip following the roll is slightly below the top of the roll itself. This construction takes full advantage of the friction saving principle of the rotary box.

*Pacific Coast Supply Company, Portland, Oregon.

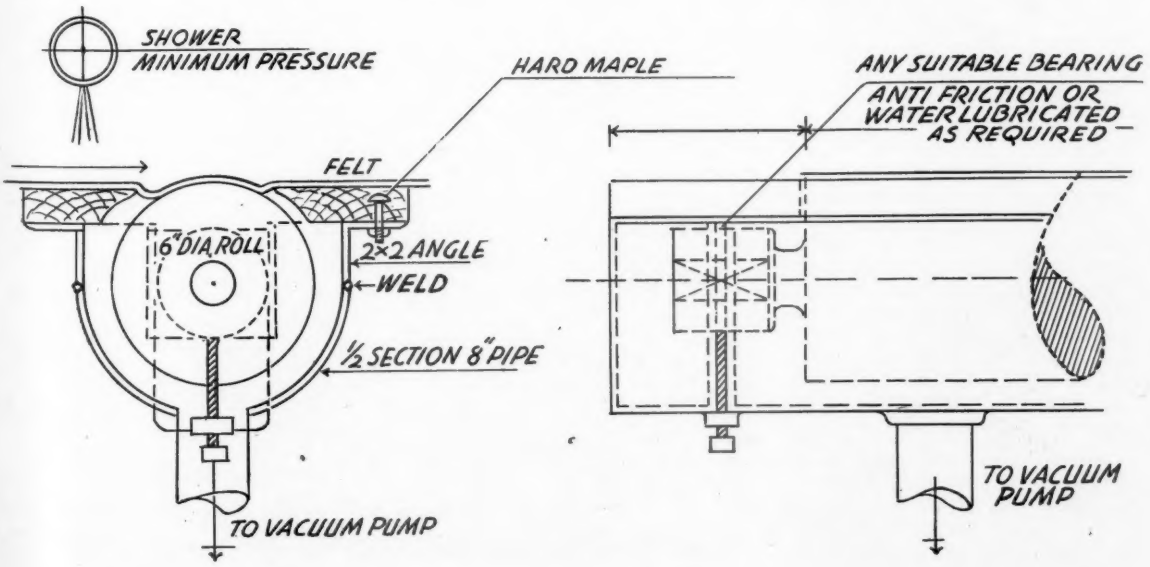
Rau Named to Pulpwood Advisory Committee

● Irving T. Rau, secretary-treasurer of the St. Helens Pulp & Paper Company, St. Helens, Oregon, was recently appointed a member of the Pulpwood Advisory Committee to the War Production Board.

Mr. Rau attended his first meeting in Washington, August 26th.

245 Camas Men In Armed Services

● To date there have been 245 regular employees of Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, join the nation's armed forces. All of these men had been with the company sufficiently long to entitle them to a leave of absence. Of the total 114 are in the army, 14 in the coast guard, 13 in the marines, 65 in the navy and 39 in the army air corps.



Jig Saw Puzzle Saves Time and Steel in Shipbuilding

OLD TIME, STEEL WASTING METHOD of fitting wood templates directly on steel plate in the shop.

LEE DONALDSON, developed paper template system.

GOOD ideas are usually simple ones. Invariably they bring the reaction, "Why hasn't someone thought of this before?" We all know the answer. Our minds tend to fall into grooves. We accept old practices without asking if there are better ways. We fail to keep on analyzing, challenging the ways by which things are done.

The necessities of war challenge the accepted ideas and methods. Those long in an industry are forced to get out of their grooves. New minds unfettered by precedents enter industry with but a single purpose, to get things done as quickly and efficiently as possible. Accepted practices are challenged to prove their worth under war conditions or give way to the new. This battle of ideas and methods is going on throughout all America's war industries today. The vital need to produce faster to win the war has accelerated the questioning of the old ways of doing things in industry. Nowhere is this more clearly apparent than in our shipbuilding yards where records are being surpassed every month through the use of new and superior ideas.

One of the latest, "why hasn't some one thought of this before?" ideas has been developed and applied at the Kaiser Company, Inc., shipyard at Vancouver, Washington. Paper plays an important part in the application of this time and material saving idea.

The steel ships now being built at the Vancouver shipyard require between 900 and 1,000 different shapes of steel plate. These are cut from rectangular steel plates of varying lengths and widths. Before the plates can be cut patterns or templates must be made to the exact size from the dimensions given on the blueprints. These templates are made of spruce, ⅜-inch thick by 6 inches in width.

One day a short time ago Lee Donaldson,* hull control supervisor, watched the foreman and crew in one of the plate shop bays fitting the odd shaped wood templates together on a steel plate preparatory to marking the plate for cutting. This solving of the jig saw puzzle was slow and tedious work. When speed was attempted more steel scrap resulted for the best possible utilization of the plate could not be obtained in a hurry. Anyone who has tried to fit a jig saw puzzle together under pressure of limited time will understand what the foreman and his crew were up against.

After the wood templates were fitted to the plate, the outlines marked and the shapes cut out, Mr. Donaldson saw the remaining scrap plate carried by the overhead crane to the scrap pile. Later the foreman needed a small piece of plate. Taking his rule he spent valuable time searching the scrap pile for one from which the piece could be cut. More time was lost moving it by crane back into the plate cutting bay.

Mr. Donaldson wondered if this jig saw puzzle fitting could be done at a desk before the order was sent to the foreman to cut certain shapes. He reasoned that if the foreman had a pattern drawn to scale to work from he and his men could save much time. Solving a jig saw puzzle is easy if you have the solution in front of you. He thought of employing photography. Maybe the templates could be photographed to scale and fitted to a scale outline of the size plate from which the pieces were to be cut. The work would have to be accurate to a high degree and the identifying code numbers painted on each wood template reproduced clearly to avoid errors.

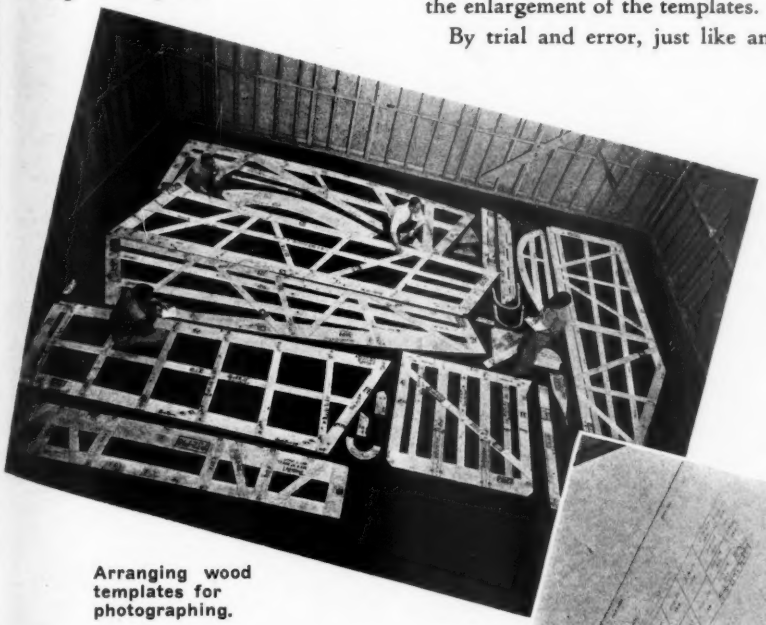
He called in expert photographers and photo finishers and put the problem up to them. Experiments were made to determine the best scale, the lighting, film, exposure and development. The experimental work convinced the management that Mr. Donaldson's application of the jig saw puzzle to shipbuilding was worth immediate adoption.

A specially constructed room for photographing the templates was found to be necessary, so an addition to the mold loft was built. The plywood floor was painted a dull greenish black and ruled into foot squares with white lines. The camera, a 4x5 Speed Graphic with a long focus lens, was mounted on a platform some 36 feet above the center. Negatives are made on glass plates for accuracy. Two banks of 500-watt lights in reflectors, mounted at different heights above the floor, provide even illumination.

The System in Operation

● Wood templates are carried into the photographic room and laid on the floor. The various sizes and

shapes are fitted loosely together to utilize the full size of the negative. The combination of templates photographed on one film has no relation to the combination cut from a single steel plate.



Arranging wood templates for photographing.

The picture is taken and the numbers of the templates recorded to avoid duplication. Another group is brought in and photographed. As fast as the templates are finished they are recorded on the plates.

The plates are given careful fine grain development to provide maximum sharpness of detail. This same attention to detail is carried into the making of the 11x14-inch enlargements, which bring the scale to ½-inch to the foot. All edges of the templates and all code markings must be sharp requiring the use of aerial mapping paper for the enlargements.

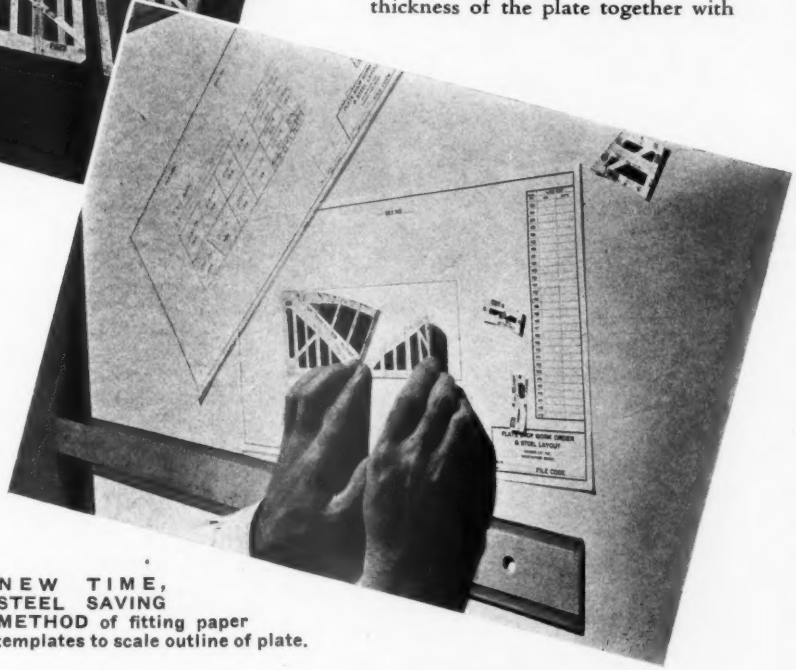
When the enlargements are returned to the mold loft two girls cut out each template. Here again care is exercised to insure accuracy. Engineer aides, familiar with shop tools, then take the paper templates and fit them into penciled outlines of the various rectangular steel plates drawn to the same scale as the enlargement of the templates.

By trial and error, just like anyone would fit a jig saw puzzle together, the engineer aides fit the templates of various shapes into the rectangle until they find a combination that leaves the least possible scrap left over. Steel is a precious metal these days and every inch saved in cutting the shapes for ships increases the available supply.

When the right combination is achieved the paper templates are tacked into place with a drop of paste. Then each is carefully outlined in pencil. As each is removed the code number is transferred in pencil to the space underneath. The template code number is then listed from the puzzle solution and the actual wood templates which are to be employed in cutting a certain size and thickness of steel plate are grouped together in the storage room.

The drawing, giving the size and thickness of the plate together with the outlines of the templates showing how they fit together, is sent to the foreman of a bay in the plate shop. He sends his men to the mold loft for the templates listed. They bring them back in one trip. Formerly as many as ten trips were required as the crew experimented with various shaped templates on the steel plate endeavoring to find the best combination.

Then the foreman and his crew with the solution to their jig saw puzzle before them in the form of the sheet prepared by the draftsmen, proceed to fit the actual templates to the plate.



NEW TIME, STEEL SAVING METHOD of fitting paper templates to scale outline of plate.

Cutting the paper templates from enlargements for fitting to scale outline of steel plate.

Saving Time and Steel

● All of the savings by this photographic paper method are not measurable. It is known that at the Vancouver yard the system saves 2 hours time out of 24 hours by each plate cutting crew. There are twelve crews working in twelve bays to supply the yard's twelve ship ways so a total of 24 hours is saved each day by this pre-fitting of the templates to the plate sizes.

Not measurable is the time saved by reducing the trips of the overhead crane carrying steel scrap to and from the scrap pile outside the plate shop.

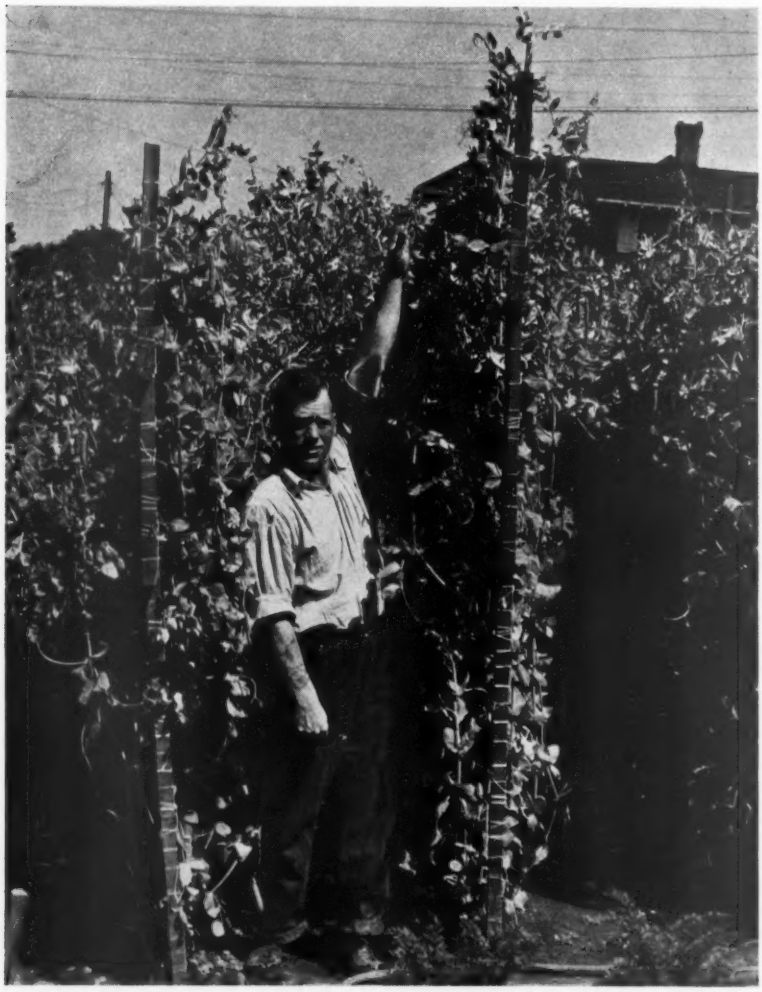
So economical is the photographic method that the saving of a piece of steel 4 by 6-feet in each ship would pay for the system.

As Mr. Donaldson's system is new the actual saving in steel is not yet known, but it will be a major contribution to the War Program if adopted by many shipyards. The saving in steel is not limited to the reduction of scrap to the minimum, but it will also save time and work for the steel mills. At present a naval architect, upon completing a ship design, estimates the lengths and widths of the steel plates of varying thicknesses from which the required shapes can be most efficiently cut. As many as 15 different size plates of the same thickness are now cut by the steel mills.

While the application of Mr. Donaldson's system of paper templates is now being used on the various widths and lengths of plate being supplied the yard, it will also be employed to reduce the number of plate sizes needed by the shipyard in building a particular type of ship.

In this new way, or rather through this application of the old jig saw puzzle to a new job, paper plays a vital part in speeding up Production for Victory.

*Lee Donaldson was born in Portland, Oregon, 30 years ago. Before joining Kaiser Company, Inc., in June, 1941, he was engaged in similar work in the Cost Control Department of Libby, McNeil & Libby. There he photographed operations and studied them in an effort to improve efficiency. At present he is working to further improve the paper template system described in this article.



CAN ANYONE BEAT THIS VICTORY GARDEN? BILL HUDGINS, cutter box man in the machine room of the Everett Mill, Pulp Division Weyerhaeuser Timber Company, shows how tall the peas grow in Everett.

In an area 15 by 42 feet, Hudgins planted 2¼ pounds of peas. He harvested a crop of 800 pounds, canned 125 pounds and sold the rest for $28, which he put into a War Bond and stamps. The farming job done, Bill Hudgins joined the Coast Guard the middle of August as a Chief Boatswain's Mate.

Camas Men Win Suggestion Awards

● Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, awarded Herman Rickard $26.50 in war bonds and stamps August 14th for his suggestion of painting gas fan runners with synthetic drying oil. The presentation was in line with the company's policy of awarding employees for their constructive suggestions. A. M. Fisher received a $20 award for suggesting changes in washer drives on number four machine. C. E. Herb received a $10 award and Frank Lehn $5.00.

Two-dollar awards were presented to the following: Carl Britton, George Clemans, Keith Dedmore, J. B. Emily, Happy Hall, Verne Hancock, Milan B. Hill, Charles Knode, Dale Newman, Ray Olson, W. E. Priebe, Herman Rickard, and Paul J. Ryan.

C. Meyers and P. Bennett were awarded $1.00 each for their suggestions to prevent guard ropes from coming off when putting the sheet over the dryer.

Steve Riggs Retires After 58 Years

● Steve Riggs of the Stockton plant of Fibreboard Products Inc., retired on July 22nd after 58 years of paper making. He began work on a beater in a paper mill when he was 14 years old and when he retired he was also running beaters. During his long career in the industry Steve Riggs held most every job from the beater to mill superintendent.

Mrs. Natwick Undergoes Operation In San Francisco

● Mrs. A. G. Natwick of Camas, Washington, underwent a serious operation at University of California hospital, San Francisco, California, on August 12th. She and Mr. Natwick, assistant resident manager, Crown Willamette Paper Company, Division Crown Zellerbach Corporation, Camas, left for San Francisco on August 5th in preparation for the operation. Mrs. Natwick is reported to be recovering satisfactorily.

Golf Balls of Wood Pulp?

● New formulations of ethyl cellulose plastic designed to replace rubber have been found suitable for many uses of the now scarce material, the Hercules Powder Company announces.

Soft formulations of this plastic can be used instead of rubber in gun covers, electrical tape or "friction tape," water tubing to replace brass, raincoats, hospital sheeting, garden hose, and other kinds of rubber hose, mason jar rings, surgical tape, wire insulation, golf balls, baby pants, gloves, impregnated fabrics, coated fabrics, washers and footwear. It is also described as resistant to mustard gas. Ethyl cellulose is now produced by Hercules Powder Company at a plant in Hopewell, Va.

Ethyl cellulose in the form of a soft plastic for these applications is not only a new approach to the rubber problem but a comparatively new development in plastics, most of which heretofore have been hard plastics, the company said.

Ethyl cellulose when compounded with oil and chemical plasticizers in the range of 40 to 60% ethyl cellulose and 60 to 40% plasticizer, produces compsitions having many of the qualities which have made rubber applicable to numerous products.

The new plastic formulations, the company said, while not suitable for tires or inner tubes as presently developed, would probably be suitable for rubber applications which before the war consumed 60,000 tons of rubber.

All of the materials required for the manufacture of ethyl cellulose are domestic materials or materials obtainable in sufficient quantities for large-scale production. Raw materials required for the manufacture of ethyl cellulose itself are cotton linters or wood pulp, caustic soda, chlorine and alcohol from natural gas, or from fermentation of agricultural products.

Qualities of the various formulations are toughness, pliability, flexibility, impermeability and thermoplasticity. The soft type mixtures can be made to retain good flexibility at temperatures as low as minus 70° F., a temperature at which most plastics will shatter like glass upon impact.

Properties which restrict the application of ethyl cellulose are its limited elasticity and lesser resistance to tearing than rubber.

Laboratory tests made thus far upon the material have developed some of its properties which are now available to molders and fabricators. A wide range of properties may be produced by varying the formulations, particularly the plasticizers used. The most likely plasticizers for formulations are animal, vegetable and some mineral oils as well as the usual chemical plasticizers. Among those tested are raw castor oil, cottonseed oil, Aroclor 1260, Hercolyn D, tricresyl phosphat, Fractol A, Opalwax, Paraplex RG8, corn oil, soy bean oil.

Some formulations have quite good abrasion resistance and tensile strength sufficient for many uses. Water resistance comparable to that of compounded rubber can be built into these soft-type cellulose plastics.

Resilience ranges one-fourth to one-half that of rubber samples tested. While tensile strength of some of the sample formulations is superior to that of rubber, elongation or stretch of these samples is considerably less than that of rubber. Samples may be flameproofed by the use of tricresyl phospate, chlorinated diphenyl and chlorinated paraffin.

Two types of ethyl cellulose, N and G, are used in the formulations, the N having 48% ethoxyl content, the G, 45%. The lower athoxyl content has been found better for injection molded plastics, the higher content better for extrusion molded plastics.

The G type ethyl cellulose plasticized with some plasticizers shows little effect from exposure to gasoline. In general, both the N and G types are unaffected by motor oil. Some formulations show a slight increase in stiffness although not as much as rubber. Strong soap compositions (sodium carbonate) do not harm the plastic. Some formulas are unaffected by butter, indicating it may possibly be used for containers for food products. It is quite resistant to ozone, a property of interest to the electrical industry.

Pacific Coast Supply Moves Portland Offices

● The Pacific Coast Supply Company moved its Portland offices from the Pittock Block to the Public Service Building the latter part of August. The Public Service Building is located at 920 S.W. Sixth Avenue.

RED CROSS RECEIVES CROWN ZELLERBACH FELTS. A new and continuing source of warm wool blankets for disaster preparedness chests of Pacific area chapters of the American Red Cross, has been made available by gifts of wool felts from the four Washington and Oregon mills of the Crown Zellerbach Corporation, A. L. Schafer, Red Cross Pacific area manager announced on August 19th.

The blankets will be stored in a disaster warehouse in San Francisco and will supplement blankets and other emergency supplies stored by the Red Cross at 23 key points on the Pacific Coast. Paper making felts from Port Angeles, Port Townsend, Camas, Washington, and West Linn and Lebanon, Oregon, are being donated by Crown Zellerbach. The corporation is also bearing the costs of shipping to San Francisco, cleaning, renapping and cutting into blankets of standard size. Cash from the sale of scrap is also being donated by the paper firm to the Red Cross.

Miss Lorraine Nelson, San Francisco Red Cross Motor Corps volunteer, displays a few of the many blankets made from felts and stored ready for disaster use.

Discussions at Superintendents' Meeting Reveal Useful Ideas

● Recently the American Pulp & Paper Mill Superintendents Association released transcripts of the discussions at three group meetings held at the annual convention in Grand Rapids last June. They reveal to those who were not able to attend that the discussions of operating problems were productive of valuable information.

Space limitations preclude the publication of the transcripts in full in this journal. Excerpts covering points of special interest to Pacific Coast operating men are printed below.

From the Chemical Pulp Group Meeting— Chipper Knives

CHAIRMAN BLANKENSHIP: We will now proceed with questions on the mechanical side, the first will be on Chipper Knives.

What are the advantages of double-bevel blades? Mr. Robinson, I would like to hear from you first on that subject.

MR. ROBINSON: One usually gets a better quality chip, less sawdust and savings in power, and longer knife life.

CHAIRMAN BLANKINSHIP: Why with a double-bevel blade rather than with a single-bevel blade?

MR. ROBINSON: With a double-bevel blade you get better chip clearance. The chips break up a little better and allow for better penetration, and there are other advantages.

CHAIRMAN BLANKINSHIP: The advantages of solid blades over welded blades? You have all had experience with both. Could you elaborate on that?

MR. ROBINSON: With a solid knife there is no danger of any weld breaking, causing accidents. And they are making solid knives now so that they can be ground down to advantage. Very often the solid blades are tempered back further than the welded blades, and allow for further grinding.

CHAIRMAN BLANKINSHIP: Isn't that more or less a question of economy?

MR. ROBINSON: Yes.

CHAIRMAN BLANKINSHIP: If you have steel that doesn't grind back so far, can you use a solid blade?

MR. ROBINSON: Yes. It is possible to get a little more grinding on a solid blade than on a welded blade, if it is tempered back properly.

CHAIRMAN BLANKINSHIP: We have ground a solid blade knife back to almost the bolt holes and had very good results with it.

"What care should be exercised in placing chipper knives on the chipper discs?"

MR. ROBINSON: In placing a knife on the disc, instead of hammering the knife in place, if the bolts only were tapped the knife would, doubtless be saved considerable punishment. On worn chipper discs care should be exercised not to develop an uneven bearing in tightening the bolts.

CHAIRMAN BLANKINSHIP: You mean, instead of hammering the knife on to the knife holder the bolts only should be tapped?

MR. ROBINSON: That's right. We have found in our experience that chipper knives are very often abused—fractures are caused—and eventually the knife will break.

CHAIRMAN BLANKINSHIP: Is there a strain there?

MR. ROBINSON: Yes.

CHAIRMAN BLANKINSHIP: "Why is a round or oval countersunk bolt hole more desirable than square holes?"

MR. ROBINSON: A round or oval hole is much stronger —less likely to break at the hole. The square hole is weak.

CHAIRMAN BLANKINSHIP: "What care should be given chipper knives when not in use?"

MR. ROBINSON: They should be stored, of course, properly, in a dry place. Putting oil on them will help to keep them from rusting.

CHAIRMAN BLANKINSHIP: I might say that at present we have just built in the wood room a rack that carries the various sets of knives. In other words, I believe we are using four different sets to date. We put on one company's knives at a time, calling it a set. Those knives go back into the proper rack so that one knife doesn't get slipped over into another fellow's knives and they all go back as a set. They are rubbed with a thin oil when they are put back. Perhaps they may be put back in their respective rack and won't be used for a whole month, depending on conditions.

MR. ROBINSON: When I was down to visit the Champion Paper and Fibre plant at Canton, I noticed that they had a very ingenious way of carrying their chipper knives. Mr. Sprang can probably tell us something about that.

MR. SPRANG: Well, it's a matter of safety more than anything else—a matter of convenience. We take a piece of 10-inch belt—an 8-inch piece of belt might do—and make a little container with a wood bottom in it. It will hold two knives with a rubber strap on it which a man can put over his shoulder, and we haven't had anyone hurt yet because of our handling the knives that way.

CHAIRMAN BLANKINSHIP: That is a very good suggestion.

MR. SPRANG: We might possibly for a little longer distance use a small truck for that. It protects the edge of the knife, and the edge of the knife, of course, is put down in the wood in the bottom and the square end is set up so that you can pick up the knife by the slots. And it works pretty well that way. In the past we have had some accidents due to the handling of knives individually or carrying them around in one's hands; but we have eliminated that by having these little containers, which aren't of much expense. Just any piece of scrap rubber belting will do for that purpose. As a result of this, we have found that the number of accidents which occurred in the wood room just because of the handling of knives has been cut down to a very large extent.

CHAIRMAN BLANKINSHIP: "What care should be taken in grinding knives?" That is very important now, since steel is so hard to get.

MR. ROBINSON: We recommend a neutral, highly alkaline coolant, or water. I have found in my experience in mills that very often the grinding is done by an inexperienced man who knows nothing about machinery. He may feed the knife into the grinder too heavily and, as a result, he will burn the knife. A modern grinding machine pays for itself within a short time.

CHAIRMAN BLANKINSHIP: I was going to add that. With the same man grinding day after day?

MR. ROBINSON: Yes. I was in a mill about three months ago, and they had an old colored fellow there about 75 years old who was operating it, and he was taking off about 1/64 inch every time he put the knife through.

CHAIRMAN BLANKINSHIP: He was developing a great deal of heat there.

MR. ROBINSON: He was burning a lot of knives, and they wanted to know what was the matter.

CHAIRMAN BLANKINSHIP: "What care should be given the grinding stones?"

MR. ROBINSON: The operator should see to it that there is plenty of water placed on them at its contact with the blade; and that they are properly adjusted; that they are cleaned with a hacker and kept free from small particles of steel which are apt to accumulate. A soft, fine-grain emery wheel, preferably a segment type, should be used.

CHAIRMAN BLANKINSHIP: "What is the best guide as to the frequency of grinding?" That is a very good question.

MR. ROBINSON: Your accumulation of sawdust is the best guide, I should think.

CHAIRMAN BLANKINSHIP: Has anyone else any suggestions on that?

Regardless of the fact that we weigh our sawdust, we shut down in a very routine way and file. There, again, it depends on the steel. But regardless of the steel, we shut down every two hours and file. We grind every four hours of operation on all knives, with the exception of one knife which we can't procure any more. Is that the common practice?

MR. MURTFELDT: Isn't that contrary to the claims of the knife maker?

MR. BEIGHEY: It has been our experience in regard to the knives that the operator or the man with the chipper knows better than anybody else what the knives are doing; and to a large extent we rely upon the chipper man's inclination as to what to do. One set of knives may operate for 16 hours and when they come out, they may still be in good condition; they could probably be used for a still longer period of time. But we do change them after every 16 hours of operation. On the other hand, some other knives may be run for only two or four hours, and during the lunch interval we have an excellent opportunity to check them and then change them, if necessary.

We do hone the knives at these intervals when we get a break in operation. But the chipper man knows whether the chips are producing, and he is right there, and if he is consciously concerned about the cording that he is handling, through uniformity he can tell you in a few minutes whether you are getting the results you want. We let him very largely be the judge. That is, he is the fellow who says that he either desires a change or that he thinks we should change at noon; and if you don't hear anything from him, you know that everything is going fine and you run right straight through for 16 hours.

CHAIRMAN BLANKINSHIP: Well, I do it in a routine way. When wood is used off the bottom of the pile you get grit, which causes one particular condition. You have all sorts of conditions which can enter in there. I don't leave the situation up to just one man.

MR. SPRANG: Gentleman, is there any convenient and inexpensive way of measuring the condition of a knife other than that, particularly with reference to the measurement of sawdust? I might say that our method is like the one Mr. Beighey has mentioned just now. You can practically judge by the sound of the cutting of the chipper as to what condition it is in, but even more so by the cutting action of the chipper by watching the wood. But I am wondering if there might not be some better means of measurement?

CHAIRMAN BLANKINSHIP: Rather than the so-called practical way—you mean, the scientific way of measuring?

MR. SPRANG: Yes.

CHAIRMAN BLANKINSHIP: I don't know of any. We measure sawdust in a dump box. The sawdust runs off the conveyor into a dump box. It depends on the knife you are running, where your wood is coming from, and the type of wood. But ordinarily you notice at the end of four hours the frequency of that dump box pickup. We count the number of dumps daily; that is the way we measure our sawdust. And if you were to install a recording device on the dump box, I believe that generally speaking you would find the quantity of your sawdust storage to increase in, roughly, four to five hours. Of course, that doesn't apply to all steels, but in a day-in-and-day-out operation, that's about the way it goes.

MR. SPRANG: The amount of sawdust that is made, though, in chipping wood isn't entirely dependent, of course, on the actual condition of the knife.

CHAIRMAN BLANKINSHIP: Quite right. That is about the way our operation goes.

MR. SPRANG: Very much so. If we could operate the chippers with an absolute fixed rate of wood tending to keep the spout full and keeping the screens loaded—both the chip and the sawdust screens—it wouldn't be so bad.

CHAIRMAN BLANKINSHIP: And if we had greater uniformity of wood.

MR. SPRANG: Yes. As you probably know, one mill on the West coast anticipated that in his mill, by putting in a storage bin ahead of the chip screen, which is a good idea. Then he definitely feeds that chip screen with a rotating device so as to have practically a constant load. We, of course, know that the variation on normal chip screens is due to an improper supply of wood to the chipper.

CHAIRMAN BLANKINSHIP: Or you might say, up and down operation.

MR. SPRANG: That's right—or it may be due to the knife. We re-screen all of our sawdust from the main chip screen over a smaller rotater and thereby we get a gradual and a more uniform discharge. But it is not quite as good as a good normal supply of chips to the screen would be.

CHAIRMAN BLANKINSHIP: Any other suggestions in regard to the grinding of knives?

"Is the use of water as a coolant while chipping beneficial?" Has anyone had any experience with the use of water in chipping?

MR. SPRANG: Is wood washing sufficient?

MR. ROBINSON: It may help, where there is plenty of water to be played on the knife properly.

CHAIRMAN BLANKINSHIP: In other words, you would run a slight stream of water right down your chipper spout?

MR. ROBINSON: If it can be done, yes.

MR. MURTFELDT: I believe that when your wood becomes somewhat case-hardened by lying around in the yard for a long time, you will have better success with it if you put a stream right in the spout. From my experience that has proven to be better than anything else.

CHAIRMAN BLANKENSHIP: Frankly, I run water down the spout. I always do—I don't care whether the wood is carrying 50 per cent moisture or 30 per cent. I think the uniformity of the chip is better. And I run quite a stream, too.

MR. SPRANG: How does that affect it? Suppose you get an excessive amount of water?

CHAIRMAN BLANKINSHIP: I don't use dust removal; I just use classification screens.

MR. BEIGHEY: What would you consider a considerable amount in quantity or in size of pipe distribution?

CHAIRMAN BLANKINSHIP: An inch-and-a-half stream going in there, with no particular pressure on it.

MR. BEIGHEY: What size chipper?

CHAIRMAN BLANKINSHIP: Eighty-four inches.

MR. BEIGHEY: That's very good.

CHAIRMAN BLANKINSHIP: Running slow speed—160 I thing it runs, on four knives.

"Is there any advantage in keeping records of chipper knife performance and chip classification?" Yes. Who wants to talk about it? (Laughter.)

MR. BEIGHEY: Personally, I feel that the success of the new alloy steel knife was entirely dependent on chip records, and that for the additional investment, you were in a position to tell whether you were getting good results or not or whether you could afford to get them.

When the present emergency is over, I believe that we will all go to a better type of alloy knife; I mean, all users of chipper knives. And the only way you can actually measure the results and tell whether it is warranted, is by keeping good, accurate chip records. In turn, I think that the only check you have on your sawdust and on your coarse chip graduations is by making routine tests of your chips from day to day.

CHAIRMAN BLANKINSHIP: Do you classify your chips? That is, do you sample them, then put them over a small shaker screen and classify them?

MR. BEIGHEY: Yes, periodically we go into an elaborate classification for a report. We carried that on for a period of time, but we found that it didn't warrant doing it continually; because on certain types of wood or under certain conditions, your changes are comparatively little. But every time we have a change of conditions, we are in a position to go through a complete examination.

We have a daily test and then, in addition to that, we have these other tests periodically, according to wood changes. If it is warranted, we carry that on for a long period of time.

MR. ROBINSON: We have published combination chip classification and chipper knife performance charts which we will be glad to supply to anyone who is interested in having them.

CHAIRMAN BLANKINSHIP: There is going to be a lot of progress made in this matter of making chips as years go on. I think we all realize more and more the importance of the uniformity of chips. There have been great strides made in the last few years in multi-knife discs, chip screens, and chipper knives. I think we are all looking in that direction for economies and quality. After all, it is our big raw material that comes in daily, and for years we never paid any attention to it.

MR. SPRANG: I would like to know if anyone would like to express himself on the economic comparison between the ordinary carbon steel lathe knife and the high-speed solid alloy steel knife?

CHAIRMAN BLANKINSHIP: I can only say that if you were selling bleached sulphite pulp and you had a pulp that you could sell for twice the going price, you must have a good pulp. It has been, I think, generally accepted that it pays to purchase a better knife than we used to consider in the case of chipper knives. It is better to buy an alloy steel knife and pay the price and forget your troubles. I think that has been generally accepted.

MR. BEIGHEY: As near as I can see, there is only one disadvantage in operating an alloy knife or a high-grade knife, and that is when you have accidents—which cost you more money.

MR. BEIGHEY: That is particularly true in regard to nails or anything like that. It costs you money when anything goes through. Outside of that, as I said before, we have 16 hours plus of operation; less changes; less shutdown time for your wood room force; more uniform chips; and also less sawdust. Even under the same operating conditions, I think it is well warranted to spend the additional money. But if you do have accidents, it may prove to be a little higher in your net cost.

CHAIRMAN BLANKINSHIP: Up in the northeast, unfortunately, we have all sorts of things to chip. We have horseshoes and spikes—and they do put the strangest things around a tree. A woodsman will take a horseshoe, hammer it into a tree, and hitch his horse to it. Years go by, that tree grows around the horseshoe and when you put that wood through the chipper, it's a pretty sad story sometimes. Although I have seen a horseshoe go through and you would hardly have known it, because the knife simply cut the horseshoe completely through.

MR. ROBINSON: In the South, particularly around Jacksonville, Port St. John, and Panama City, they have a lot of what they call "cat-face" wood—spikes and nails that are driven into the tree to hold the turpentine cups. These remain in the tree and they are very carefully preserved. The tree grows around them, and they are awfully hard on chipper knives. There are lots of them in the butts of the trees.

I know of one particular instance in the South where a chipper bolt fell into the spout, and the alloy knife hit this bolt lengthwise, cut it clean, and took off perhaps a quarter of an inch of the blade. But that was little damage considering the circumstances.

From the Tissue Paper Division—Fourdrinier Wires

MR. N. O. WEIL, (W. S. Tyler Company, Cleveland, Ohio): I would rather have people ask questions about wires, about the type of wire that you use in your industry. I don't think that there is anything that I can say without some questions. What would you like to hear?

CHAIRMAN BENNETT: Anything you might have to say about the selection of wires, and I think any ideas you might have about how to make them last longer will be appreciated.

MR. WEIL: Well, of course, the same principle applies to these cigarette wires as to the book wires. That is, the selection of the metal itself, and getting the proper grain structure, especially in the warp wire which takes the bulk of the beating. Now, as to the differences in the wire: In the cigarette wire, we make them 66x192 mesh, and for condenser paper, they are finer—70x120 or very close to that. The wires will vary just slightly in diameter. The next thing is the seam.

Some prefer the sewed seam and some prefer the brazed seam, and experience thus far shows that the brazed seams are a little, shall we say, "unpredictable." There have been some excellent wires made with brazed seams, but the best results have been with the sewed seams.

It is a very delicate operation and rather new to all of us wire makers. We haven't worked as long on these wires as we have on the book wires, and it is very exacting work to get that brazed seam just right. The sewed seam, of course, is a remarkable piece of work, done by women more than men—that is, the sewing of the seams. And we have been able to get more uniform seams with the sewed than the brazed.

CHAIRMAN BENNETT: How do you account for that?

MR. WEIL: Well, it is a combination of circumstances—your heart control and all used in brazing—and we just have to get more experience with it. You must remember that these triple chain wires have been made only recently. You were the first to require any. How long has your mill been running there?

CHAIRMAN BENNETT: Three years.

MR. WEIL: We have been at it only three years. You were the people that really brought the triple chain wires to the front, as far as American wire makers were concerned.

MR. P. W. AYRES (Smith Paper Company): That is right.

MR. WEIL: Prior to the war, almost all of those wires came from Europe. I don't think, (Fred Crossman of Lindsay) that your company ever made one, did they—triple chain? I know we didn't, and I doubt whether Sinclair made very many. We were the three that started in this country.

Well, of course, you know how it is with the baby. The baby first creeps and then walks, and that is the way it is with some of this seam structure. We just have to feel our way as we go along and then we will get better and better. I think your experience is proving that. The wires are running much better now than when you started three years ago.

CHAIRMAN BENNETT: What do you think about that Mr. Ayres?

MR. AYRES: Well, we have used both the sewed seam and the brazed seam. I think that the sewed seam has a little more flexibility than the brazed seam. Sometimes, I think the meshes fill up somewhat and give us a mark at times. If the fellow is not careful in brazing that seam, it gets filled there, but I think they are getting better all the time.

MR. WEIL: All you have to do is to look at the sample of this stuff. Anyone who hasn't seen how fine and delicate a fabric it is should just look at that under a fine glass (passed a sample around to the men) and you can see that it is a work of art to be able to put any kind of a seam in it.

CHAIRMAN BENNETT: What have you to say about it, Mr. Crossman?

MR. A. F. CROSSMAN (Lindsay Wire Weaving Company): I am of the opinion that when the technique of the operator is developed, that the brazed seam will replace the sewed seam in fine wires.

CHAIRMAN BENNETT: Why do you say that?

MR. CROSSMAN: Because I don't think we have reached the point of perfection yet in teaching the operator to put that seam in the wire.

CHAIRMAN BENNETT: Is that desirable from the manufacturer's standpoint?

MR. CROSSMAN: Yes.

CHAIRMAN BENNETT: To make a brazed seam instead of a sewed seam?

MR. CROSSMAN: I don't think it makes much difference. We prefer to do it that way.

MR. WEIL: Just so some of these men who are not familiar with this, who are not wire weavers, will see what a delicate operation it is, here is a sample of a sewed seam sewed with a stainless steel wire, and the wired diameter is about .0032 inches. Of course, Mr. Crossman, Martin and Mr. Raines are quite familiar with that, but any of the rest of you may not have seen what a delicate thing that is. Now, I will pass this around, and you look at this fine stainless steel wire, and then remember that you can't sew that with a needle—the end of the wire is the needle. If you want to see a work of art, there it is. Here is a fine piece, if you care to look at it. And you have had relatively few complaints, I understand, from all makes of wires on the seam.

CHAIRMAN BENNETT: What about the alloys? Are they more or less secret with the different wire manufacturers?

MR. WEIL: That is all standard phosphor bronze in the warp, which would run from 93 to 95 per cent copper, and the balance, tin. Differetn manufacturers will vary the percentage of tin. Some will use 92 per cent copper or 93.7 or 94.8. Your principal control of wire quality is by your annealing and drawing of the wire.

CHAIRMAN BENNETT: All of the bigger manufacturers draw their own wire?

MR. WEIL: Yes, they do. And then they anneal it. They control it so that the larger manufacturers can guarantee the structure to be uniform throughout thousands of miles of wire.

CHAIRMAN BENNETT: And most of them do their own alloying too, don't they, or do they buy the metal?

MR. WEIL: No. They buy it in rods of a quarter of an inch in diameter and pull it down.

CHAIRMAN BENNETT: Does anyone have anything new to offer about taking care of these wires to make them last longer? There was a certain amount of talk in yesterday's forum about the kind of showers to use. How do you recommend that your wires be showered and how much water pressure? What about it, Jim?

MR. J. W. RAINES (Lindsay Wire Weaving Company): It just depends upon the conditions, as to the amount of water that you use. On a spray shower, you don't have to use much. The size of the sprays are different. We have some machine builders who have different ideas on it.

CHAIRMAN BENNETT: I want your ideas on it.

MR. RAINES: I think around 30 pounds—25 to 30 pounds, as an average.

CHAIRMAN BENNETT: You think it varies with different mesh wires?

MR. RAINES: On the finer mesh, they require more shower, but you are hitting a danger point, with a too heavy shower.

CHAIRMAN BENNETT: What do you think is the top limit?

MR. RAINES: I would say about 40 pounds—40 to 50 pounds.

CHAIRMAN BENNETT: What do you think about that, Mr. Denison?

MR. DENISON (Beloit Iron Works): I don't know. I have watched this over a long period of time and I have sold any quantity of the original mills shower pipes. I have seen some very good results obtained in keeping wires clean; under acute conditions up as high as 65 pounds pressure through those pipes. When you get into the higher pressures, you can expect to use more water. I notice, in a small way, some things that are coming into the market now—a small jet—a traveling jet—a series of traveling jets. Thev are quite economical. Unfortunately, a lot of diffusing pipes are only around 20 to 25 pounds pressure, and really, that is too low a pressure under many conditions.

CHAIRMAN BENNETT: You think there ought to be a pressure of forty pounds?

MR. DENISON: I do. I think it is desirable.

CHAIRMAN BENNETT: You have a lot of experience, Mr. Ayres. What do you think?

MR. AYRES: I leave that to Mr. Packard. He has been working on showers recently.

MR. R. A. PACKARD (Smith Paper Company): I came in right in the middle of this thing.

CHAIRMAN BENNETT: We were talking about the most desirable shower pressure.

MR. PACKARD: Well, we have had a distinct water shortage, and that made it necessary to curtail the volume of water as much as possible. Now, we figured there are two ways of cleaning wires, felts and so forth. One, is to us a large volume of water at low pressure like that which was given here, about 25 pounds—20 to 25 pounds, and the other is to use a smaller volume, at say, anywhere from 80 to 100 pounds. We understand that some showers using from 80 to 100 pounds pressure brought an astonishing reduction in the amount of water, from 60 to 80 gallons per minute, down to 20 gallons per minute, and gave in some cases good results.

Generally speaking, the results have been gratifying, but we found it was essential, instead of using a pinpoint jet, to use a jet that does fan out, so that the wire or the roll could be entirely covered with the water, even if the spacing of the nozzles might be an inch and a quarter to an inch and three-eighths apart. We have found that it is most essential in these high velocity showers, and small size apertures, to have exceptionally clean water. We found it necessary to double filter the water. For example, in the use of normal sand filter, small particles are very apt to be carried along with the water so that the subsequent fine mesh bags are essential to prevent these nozzles from being clogged up.

Each of these nozzles have been provided with its own screen or little wire mesh cap on the under side. We believe that it is far more economical and efficient to have a master strainer on the end of each shower pipe of sufficient capacity, so that it won't become plugged up too soon. Perhaps a cleaning of it once every eight hours or sixteen hours is not too often. We feel that there is yet to be done much work in the perfecting of the high pressure, low velocity showers, and we believe that the application, the study of them, is going to give us better results as time goes on.

CHAIRMAN BENNETT: Does somebody make those showers for you, Mr. Packard?

MR. PACKARD: No. They were a standard product, and I think a great deal can be expected of them in the future.

CHAIRMAN BENNETT: You have heard quite a bit about the edge cracking on these finer wires. What do you know about that, Mr. Crossman? What do you think is the cause of it, and how can it be cured or eliminated?

MR. CROSSMAN: I think I will yield to Mr. Raines on that.

MR. RAINES: Well. I think quite a bit of trouble is due to the fact that the edges are filled up and can't be properly cleaned out. There are a lot of mills which have suction rolls which allow the wire edges to fill up and get tight. Sometimes you can slack off an edge, but you are likely to have a sloppy edge.

CHAIRMAN BENNETT: In your weaving, your edges are woven a little bit tighter?

MR. RAINES: No. We slack them off in a lot of cases for the mills. We try to have a perfectly woven wire, but in a lot of cases you have to slack them off a little bit. We found a lot of mills where there was trouble. The rolls were worn so as to tighten the edge of the wire.

CHAIRMAN BENNETT: I could say too, that we have found that some cracking develops from bumps while being installed.

MR. RAINES: But that is a different type crack than you get in the other case. We found, in a lot of places, where they do not keep the edges cleaned out that the edges soured especially in warm weather. When the stock dried there were cracks.

CHAIRMAN BENNETT: So you think if the edge is kept clean—

MR. RAINES: And the rolls kept in shape—that has a lot to do with your edges.

CHAIRMAN BENNETT: How about the selvage?

MR. RAINES: We have some mills that would like a trimmed edge and no selvage at all on these fast jobs.

CHAIRMAN BENNETT: You think the more selvage on the wire the more chance of cracking?

MR. RAINES: I don't know whether the fellows agree with me or not on that. Years ago we never put a wire on with a selvage. We figured if we trimmed the edge off we saved trouble.

CHAIRMAN BENNETT: That was the first thing you did?

MR. RAINES: That was the first thing we did.

CHAIRMAN BENNETT: What do you think about the relative value of doctoring the wire rolls and cleaning them with showers? You say you have been making a study of that, Mr. Packard?

MR. PACKARD: I wouldn't say I had made a particular study of that thing. I would rather have one of the other men here answer that.

CHAIRMAN BENNETT: How about Mr. Denison?

MR. V. S. DENISON (Beloit Iron Works): Twenty years ago I did know. You have to run doctors on them. The first roll directly behind the couch must have the doctor. It is probably wise to put it on one or two others. You mentioned blades. I wanted to ask that thing yesterday—the type of blades to use on the rolls on the Fourdrinier. There are many things that have been tried. Wood blades were probably the original. Some of these synthetic blades are very valuable today for that purpose. One or two things have come under my observation and that is, there are more rolls being rubber covered. Some of the carrying rolls on Fourdriniers are being rubber covered because we can't get brass, and anyone who has such a rubber covered carrying roll must watch that doctor blade on that rubber very carefully. It will score up very quickly, and in general, I would say that those doctors should be vibrated.

CHAIRMAN BENNETT: Very few of them are, though.

MR. DENISON: None are that I know of. I don't know how else you are going to keep away from scoring those rubber rolls, and apparently right now, that is the only type of a roll that you can get. I see some shaking of heads in a negative manner and I am not asking anyone to agree with me.

CHAIRMAN BENNETT: What do you say, Bill?

MR. W .E. GREENE (W. E. Green Corporation): I think the thing that causes a good deal of confusion is to talk about the material of which a blade is made, forgetting, that in discussing bakelite, you have one situation when you pick a bakelite blade, three-eighths of an inch thick, and you have quite another situation when you take a thin piece of bakelite and put it on a holder, and instead of attaching it solidly, to the supporting member, the holder holds it loosely and permits it to move. In the case of an inside roll, if you have perfectly good material in the form of a heavy blade and you are down for a little while, you will get warping, because it is precisely like a piece of steel, in that if you bevel it there will always be a curl towards the thick side. You get sometimes as high as an eighth or a quarter of an inch of warp in a heavy bakelite blade, and that is not an easy thing to adjust. It has to wear itself in again, whereas in a thin blade, you have the possibility of applying a vertical pressure, and then making contact clear along the line.

Starting a new para~raph, as you say, the difficulty is this, at the present time: If you have a difficult operation of any kind, removing pitch or fibers or clay or what not, then you tend to require a sharper edge, and you cannot get a sharper edge with a piece of cloth supported by the material that is used to make bakelite. It doesn't work that way, and so you naturally can, in those difficult cases, tend to have metal edge. But your present difficulty is to get metal that suits you, because you can't get either phosphor bronze or stainless steel.

Now—my thought would be, that to the extent that you can use a thin bakelite blade, it can be tried and then, if it does not work, you have to use the ordinary thin steel blade as the next best step. That will of course corrode. I think that the drag on both the breast roll and the wire roll can be an important factor in the wear of the wire if they are kept clean, and it would seem that in many cases, the difficulty is such that a shower wouldn't help, and in many cases just plain distributing of doctor pressure wouldn't do it.

You have to use oscillation and that is coming in especially on high speed kraft machines today.

CHAIRMAN BENNETT: What about the proper tension for wires? As everyone knows, a good part of the wearing of wires is due to slip or drag. Does anyone have any idea of what will prevent slippage? What about that, Jim?

MR. RAINES: Well, it is hard to say offhand. As you know, you have eight machines down there, and they are not operated the same way. They have different theories on how tight a wire should be. I think a slack wire does more harm than tightening the wires too tight. I don't know whether these fellows agree with me or not.

MR. WEIL: All I can say is this: I had one experience where someone made a wire that was just a little bit short, and yet they got it on the machine tight as a drum, and they got a record run. But if you take the reverse and have it run slack, the first thing you know it is all full of cracks.

MR. RAINES: You must keep the whip out of the wire to keep down wear. Arnold Barea has quite a bit of experience on wires.

MR. ARNOLD B. BAREA (Paterson Parchment Paper Company): We tried different ways. We have had trouble with cracking of the edges, and I find that slack wire will give you more cracks than a tight wire. I don't mean a wire as tight as a drum or tight as a fiddle string—I mean reasonably tight, and we have had experience on the same machine, and not on

one wire, but on several. and we find that the slack wire gives us more trouble than a tight wire so far as cracking the edges are concerned. If it runs longer, we have to nurse it along to try to save the seam as much as possible.

CHAIRMAN BENNETT: Does anybody else have anything to offer on this wire question?

MR. RAINES: Yes. One more thing that I would like to ask is on a subject that has come up several times—which is the best type suction box?

CHAIRMAN BENNETT: What do you think, Mr. Denison?

MR. DENISON: I would hate to try to criticize somebody's opinion of suction boxes. On drilled covers—there are all types of patterns of that drilling. It is mostly somebody's private opinion on just how they should be spaced. You do not want to use big holes for fine wires. I think that is true for a general statement. You must use big holes for coarse wires —high speed and heavy drainage. Personally, I am still of the opinion that the old wood cover is still a pretty good cover.

It is rather interesting to note when a new machine is starting up, the second wire, barring accident, is probably the wire that will have the longest life in the history of that paper machine. It would seem that many times the first wire is the record wire. It just seems that if the machine is in line, the rolls in condition, the mill should get good wire life. They let the rolls get dirty. and there is carelessness of striking in your couches. It would pay you to often caliper the diameter of your couch and breast roll. Those are the two rolls that have the greatest slack. I don't know whether that adds anything to the situation or not.

MR. PACKARD: I think it might be interesting to see micrometer calipers on the breast rolls or couch rolls regularly.

MR. RAINES: I would like to tell you about this: I bumped into a case a few years ago, where the wire life dropped right down way under what they had been getting and they checked things over. They found that they had very large openings in the boxes. They reduced them in size, and jumped the wire life up at least ten days to two weeks.

CHAIRMAN BENNETT: By using a smaller hole?

MR. RAINES: Right.

CHAIRMAN BENNETT: What do you think about the relative merits of the different materials for suction box covers? Mr. Denison mentioned wooden box covers.

MR. RAINES: I have the same opinion Mr. Denison has on that.

CHAIRMAN BENNETT: You think that as long as wood tops are wet they are about as frictionless as anything else?

MR. RAINES: Yes. I used brass and they were best.

CHAIRMAN BENNETT: Do you have chromium plating on the brass?

MR. RAINES: I have seen them, but they didn't hold up.

MR. WEIL: That is where the widest difference of opinion comes in. I don't think anyone has any opinion yet on what the best box type cover is on suction boxes for cigarette wires.

CHAIRMAN BENNETT: Regardless of what sort of cover you use, it seems that the most important thing is to eliminate all sharp edges, especially where they are on the leading edge of boxes, and of course, if you run a dandy, both the leading and trailing edges. I also believe, on fine wires, such as 70x210, and wires that are close to that, you wouldn't get you best life from the first wire on the machine. That is, when your boxes are just new.

The fine wire seems to have to run for a while to get the proper polish on the box tops.

Is there anything else on wires?

MR. JOHN ROSLUND (Asten-Hill Manufacturing Company): What is the merit of having wire carrying rolls driven, particularly the roll that carries the doctor?

CHAIRMAN BENNETT: What do you think about that?

MR. ROSLUND: If you put a little more tension on your doctor so your rolls tend to stop, you get very good results, we found, from driven rolls.

CHAIRMAN BENNETT: So you think they have an advantage?

MR. ROSLUND: Sure. It uses less water on your shower for the first roll.

MR. RAINES: How about a dandy being driven?

CHAIRMAN BENNETT: Let's not go into that. That is a very controversial subject. Seemingly, writing paper and such paper as that—water mark paper, seems to derive a very direct advantage from a driven dandy, but when you get a very thin sheet, the advantage is questionable.

MR. BAREA: If you are talking about driven dandies, we have three installed in our mill. The conventional dandy has to be driven through a sheet of paper which is very delicate at that point, especially when it is wet. With a driven dandy you can adjust your heights and run the paper a little wetter and get better results.

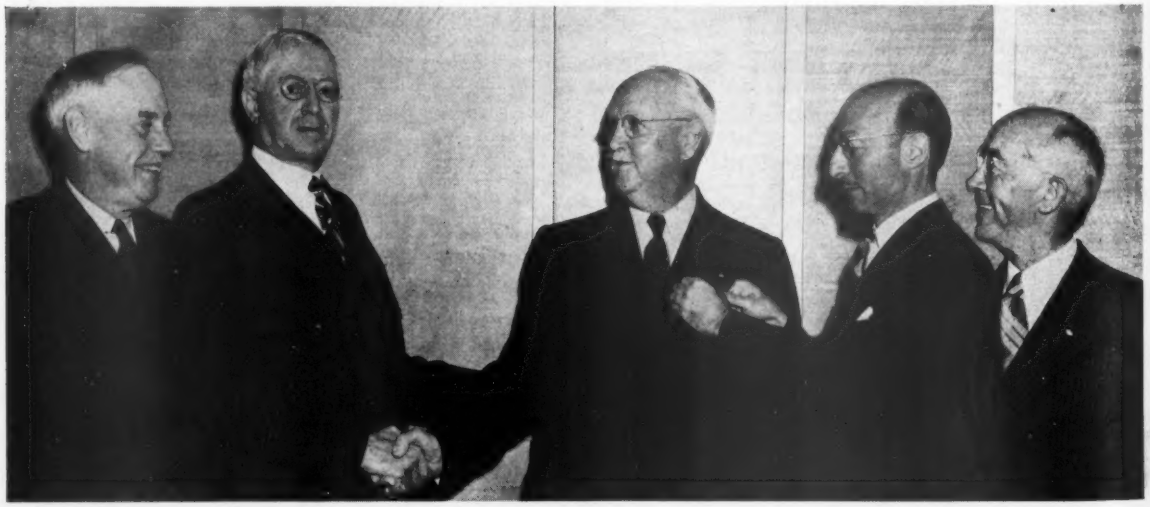
CHAIRMAN BENNETT: On what weight paper?

MR. BAREA: As low as eleven pound carbon on driven dandy, and I found I didn't get a pickup within 24 hours, whereas with the conventional dandy, it is very easy to pick up. Another thing—you have a wiper on your dandy which creates friction, whereas a driven dandy has a wiper which does not slow down your dandy

CHAIRMAN BENNETT: You can see a definite improvement in formation?

MR. BAREA: Absolutely, because you can run it wetter without crushing.

CHAIRMAN BENNETT: What type do you use—one that is mechanically driven or electrically driven?



CROWN WILLAMETTE MEN RECEIVE SERVICE PINS at a luncheon given August 12th at the San Francisco Stock Exchange Club by LOUIS BLOCH, Chairman of the Board of Crown Zellerbach Corp. Twenty-five men attended.

Left to right, HARRY GOEDJE, Sales Department, Crown Willamette Paper Co., San Francisco, who received a 40-year service pin; LOUIS BLOCH congratulating WILLIAM R. McHAFFIE, Resident Manager, Crown Willamette Paper Co. Division, Los Angeles, who is receiving a 50-year service pin from J. D. ZELLERBACH, President of the Crown Zellerbach Corp.; and, L. HOILAND, Credit Department, Crown Zellerbach Corp., San Francisco, who was presented with a 35-year service pin.

Mr. McHaffie entered the service of the Willamette Pulp & Paper Company in San Francisco on August 8, 1892. as a bookkeeper.

MR. BAREA: Electrically driven. We found our best results in driving the dandy, about 2 per cent faster than machine speed.

CHAIRMAN BENNETT: We have tried two different kinds over a period of several months with no success, and we tried very hard.

MR. BAREA: The synchronization of speed has a lot to do with it. The right synchronization is necessary.

CHAIRMAN BENNETT: We disliked very much to have to turn it down, because we built up a lot of hopes on it.

MR. BAREA: I think a driven dandy on water marked paper is ideal.

CHAIRMAN BENNETT: I have seen water marked papers of heavier grades that showed a marvelous improvement.

MR. BAREA: I have had that experience.

CHAIRMAN BENNETT: Is there anything else on wires gentlemen?

MR. WEIL: There is one thing, Ray: I don't know whether you fellows do it or can do it in cigarette paper making, but what about screening your filler? I ran into a mill a short time ago that was complaining somewhat of wire life, and just out of curiosity I asked to look at their filler and had a sample analyzed. Where it was my impression that all of that material should be finer than 325 mesh, there were coarse particles in it and probably 2 per cent was close to 100 mesh. You take a fine wire like one of those triple chain wires and get some of that coarse stuff in there—that is the swellest abrasive you could ever get to wear out a wire, and it would wear quickly if that stuff had any tendency to adhere at all.

Now—in book mills—a great number of book mills have gone to the screening of their filler through 200 mesh wire on an angle, for shortening of the opening gives them about a 250 to 300 mash.

You remember an incident, Jim, where they installed a fine filler screen and the wire life stepped up about a week per wire. I don't know whether that applies to you fellows in the cigarette game, but it is just a thought.

CHAIRMAN BENNETT: Do you have anything to say about that, Mr. Ayres?

MR. AYRES: No, I don't have any trouble. But when Vince was talking here about the rubber rolls on wires—we did have trouble with that one time. We got a little piece of steel in the roll, and we had quite a job finding that thing, and it did ruin the wire. I thought of that when we were speaking of rubber rolls. They have to be handled very carefully, because if you lay them down and get a little dirt on them and it becomes imbedded in the rubber, you are likely to get into trouble with the wire very quickly.

CHAIRMAN BENNETT: I believe, as a general rule, anybody who uses filler, screens it through a screen of at least as fine a mesh as their machines wire.

MR. WEIL: That isn't fine enough. You want to get finer wire.

CHAIRMAN BENNETT: Well, of course, there are other things that enter into it besides wires, too. I think that about winds up the wire question if nobody else has anything to ask. We have Mr. Roslund here. What can you tell us about proper selection and maintenance of dryer felts, Mr. Roslund?

Dryer Felts

• MR. ROSLUND: That is a pretty broad question and rather difficult to answer without knowing further particulars about each installation. In general, however, too rapid deterioration of dryer felts can almost always be traced back to bad machine conditions. Such conditions are often traced back to the wet end of the machine, but more frequently to inefficient mechani cal conditions on the dryer section.

Yesterday someone in the open forum listed certain headings giving various suggestions as to how to improve the life of the dryer felts. According to my opinion, one of the most important suggestions was elimination of greasy edges.

I had a very interesting experience some time ago about that on a kraft machine. We had a chance to compare felt operating costs over a long period of time, and going into the examination of the dryer felts on this machine it was found that the felts upon removal from the machine were never worn out. It didn't have half of the useful life taken out of it, due to the fact that the edges acted as oil wicks and were doing a swell job of wiping up all the oil from the sole plates, which had been dripping from the frames and dryer heads.

Well, I happen to have some figures on this and they are rather illuminating. Dryer felt operating cost was about—and it had run that high for several years—sixteen cents a ton. Finally, after some conference in the mill and office, particularly with the manitenance department, the master mechanic worked out a control oil feed for the dryer boxes, particularly for the back side, and at the very first the felt cost went down to five cents a ton from sixteen cents. That was a saving of eleven cents a ton, and taking into consideration that they made 150 tons a day, they pretty darn near saved $5,000 in one year. That was taking only the dryer felt into consideration.

In addition, chances are that they made a considerable saving in oil too, but when you consider that $5000 represents a good return on a $100,000 investment, I should think that the $400.00 which it costs to make this alteration to the oiling system of the machine a worthwhile investment.

Now, there are probably many other ways of trying to maintain the life of dryer felts, but in many instances it involves considerable outlay of money, and therefore it is difficult at this time to get the paper mills interested in it.

Now, I think it is much better if any paper makers bring up a definite question. I think we may be able to give some more constructive suggestions.

CHAIRMAN BENNETT: Well, for one thing, there are several controversial opinions as to proper weights and materials for dryer felts for tissues. What do you think about it?

MR. ROSLUND: I don't know whether I should stick my neck out or not on that. (Laughter.)

CHAIRMAN BENNETT: That is what we are here for.

MR. ROSLUND: Well, you can go too far either way. I should say that the working efficiency of a felt is very closely hooked up with the layout of the dryer section itself. For instance—if you have proper means of drying your felt out after it has performed its work—that is, drying a return felt out—I think you can use to a great advantage, a rather heavy felt. It has been definitely established that a dryer felt performs more of a function than just being a conveyor belt, and if the textile fibers in the felt has a function to perform, it would seem to me that the more of your textile fibers, the better work you should have out of your felt.

Therefore, I don't think it is of any advantage to have too light a felt. The only reason why lighter felt has been brought out is because of the fact that generally the dryer section was overloaded, and they try to open up the felt so as to aid in the removal of the moisture.

CHAIRMAN BENNETT: You think light weight dryer felts will dry more paper?

MR. ROSLUND: Oh, I don't think so—I don't think they would. But it is difficult to answer this question unless you have a definite installation to point to. If you have a machine that was designed 40 years ago for a maximum speed of 250 feet a minute, which today is running 600 or say 500 fpm, well, how have you accomplished that? In spite of the fact that you might have added suction presses to your machine chances are that the paper enters the dryer section no drier than it did 40 years ago when the machine was new.

The dryer section has not been added to in the slightest which means that 100% more moisture is disposed of here. Dryer temperatures have been increased maybe 100%, but that does not alter the fact that the dryer felt has to handle 100% more moisture.

In this instance it may be advantageous to use a light felt or rather a very open felt as it may pass through the free water vapor more readily than a heavier felt.

However, this would mostly be the case where a heavy or bulky paper is run. When finer paper is involved, more drying capacity would have to be added and a heavier felt would then be used to better advantage.

CHAIRMAN BENNETT: What do you think about the relative merits of wool and cotton and asbestos and various mixtures of material?

MR. ROSLUND: That is quite a question. Well, I think there is a time and place for everything. (Laughter.)

Talking about suction box covers here earlier this morning, it was said that the wood cover was the best in certain cases. I think that refers to a dryer felt. I think there is a time and a place for everything. The original dryer felt, I suppose, was made of possibly wool; I don't know. It was very, very far back and then we went into cotton, and that, of course, was followed by the asbestos felt. Now today there are very few dryer felt installations using woolen felts, and incidentally, I think it ought to be less yet. (Laughter.) But there may be some certain papers that may require woolen dryer felt.

CHAIRMAN BENNETT: Why?

MR. ROSLUND: Well, woolen fiber has certain qualities that you can't get out of any other fibers so far. It seems that a wool fiber has more of a yield or spring to it. You get a finer surface and you get more of an elastic contact, you might say, out of a wool fiber. By the very appearance, if you look at the wool and feel it, you can see how smooth and spongy the surface is. That is the only reason I can see for it as far as it goes, and that is the finish of it.

MR. PACKARD: How about the absorbency?

MR. ROSLUND: Yes. Well, absorbency—a woolen felt used as a dryer felt is quite absorbent, but the main difficulty with using woolen felt is that you have to have some way of drying them out. Now woolen felts are very prevalent over in Europe where you have plenty of felt dryers. I know of installations where they have one felt dryer for each dryer, and your absorbency of woolen dryer felts are very good, but it doesn't do you much good unless you have some way and means to get the moisture out.

MR. PACKARD: Don't you think it is a good plan to have a felt dryer on any kind of a felt?

MR. ROSLUND: Oh, definitely so. I think that there ought to be a lot more felt dryers. They are putting more of them in and it is quite evident that they are contributing definite improvement. It doesn't make much difference how you put the heat into the dryer section, as long as you add additional drying surface. I think, however, it makes an awful lot of difference where you put your felt dryers. I think that has a definite bearing on the drying rate of a machine. Now—to me, to take a woolen felt, a woolen dryer felt, and run it over 6 or 7 dryers and have no felt dryer, you might just as well have some kind of a non-absorbent thing altogether, because that woolen felt is going to run absolutely wet, and it isn't going to contribute anything at all hardly to your drying, with the exception of action as a conveyor belt. However, if you can dry them out, it is going to make a vast difference.

MR. PACKARD: Where would you place your felt dryers? Right after it left the hot dryer or half way between or where?

MR. ROSLUND: No. That all depends a little bit upon how much moisture you have in the paper, and a little upon your temperature of the dryers, but ordinarily if you have a section of say 7 or 8 dryers, bottom dryers—I would make the third dryer a felt dryer, and then possibly No. 7.

MR. PACKARD: Unless you could put the felt dryer underneath, on the return?

MR. ROSLUND: On the return, I would probably have only one felt dryer, and that rather close to the wet end, merely to raise the temperature in the felt, so as to equalize the temperature of the first dryer and the return felt.

MR. PACKARD: What I meant, if you had six continuous dryers with the papers going over them, the felt comes back underneath, where would you put the felt dryer?

MR. ROSLUND: At the end of a return. I will give you a little story about that. I had a machine where they were making glassine paper—very slow stock. They had six bottom dryers in the first section, 48" in diameter and one 36" felt dryer in the pit. Well, this felt was running very wet and they had a wet streak in the center of the sheet. For years we were trying to eliminate this wet streak. We made a small suction box located in the center of the wire, and we changed the crown in the press rolls. Neither one of these changes helped. We knew, of course, that the felt was running wet in the center, because there was a distinct bag there, so we skipped the second dryer. We just put a table roll on top as a sheet carrying roll and took the sheet down and passed by the second dryer.

That helped considerably. So then we went down and skipped the fourth dryer the same way. Well, the streak disappeared. We had a much more evenly dried sheet without any loss of production, and the felt life increased materially.

Now there is an instance where you added nothing whatsoever, but merely distributed you heat application, you might say, with very good results. That is the only instance I can think of, although I know of dozens of instances where this can be done to advantage.

CHAIRMAN BENNETT: What material was that?

MR. ROSLUND: That happened to be asbestos felt that was used, but that doesn't make much difference. It would have been the same on any felt. It wouldn't have made much difference at all, I am sure.

CHAIRMAN BENNETT: When you were talking about needing felt dryers for woolen felt, that applies to any kind of felt?

MR. ROSLUND: Definitely so—yes, it does, but I think it does more so to woolen felts. Therefore, if the machine builders here had the same ratio felt dryers to paper dryers as they are now putting on their new machines, woolen felts might be justified.

MR. PACKARD: We are allowed to disagree, Mr. Chairman, aren't we?

CHAIRMAN BENNETT: Absolutely. That is the purpose of this meeting.

MR. DENISON: Before we get away from this dryer subject, might I inject something else? A dryer felt has three or four functions. Probably the first one is to carry the sheet. The second one is to hold it tight to the dryers. Another one is to filter vapor, and another is to absorb moisture from the sheet. We have not appreciated the necessity of keeping the felt dry. The approved means is to take the dryer felt away from the paper, and take it over a dryer, and that is about the same thing he accomplished by skipping the paper away from a dryer. That method is called the Feeney type. The new modern machines are practically all built with such facilities for the dryer felt.

Another thing: You see many machines today with hot air systems to help increase the ventilation. In some cases it blows the moisture from the back side to the front, and from the front side to the back. In general, a reasonable number of this Feeney type dryers in a dryer section, even the paper never touches them, is equal to about three-fourths of that many additional dryers to a machine. Many of the older machines today have been altered, and as many as four and five of this Feeney type dryer inside the run of the felt, not outside, top and bottom, have materially increased the drying capacity of the machine, and fortunately, in most instances they can be readily installed. As a rule, these dryers are mounted in antifriction boxes, they are not driven. They let the dryer felt drive them.

One other thought I would like to inject: I definitely know of our machines in one mill where they took some of these quick reverse hitches out of their dryer felt and made it stretch very long, and kept the felt, I would say, open, like a belt, instead of reverse hitches, which they had two or three of, and they were much gratified. In fact, they were astounded. It increased their dryer felt life about 100 per cent.

MR. PACKARD: Mr. Chairman, my difference was in the connection with the location of the dryer. He made the statement that the felt dryer would be at the end of the reverse run of the felt.

MR. ROSLUND: I should say the felt dryer on the return felt. That is my personal opinion. It should be up at the wet end, at the very wet end, just before the felt enters into the first dryer again. The reason I say that, is to bring up the temperature of the felt, to equalize it with the first dryer temperature. Otherwise, if you have it at the dry end of the machine it loses too much of its temperature during its runs back.

CHAIRMAN BENNETT: But that loss of temperature would come from loss of moisture—evaporation on the trip to the first paper dryer, wouldn't it?

MR. ROSLUND: Yes, but there is another thing too. You must remember, when you reduce your temperature, you are apt to go so far that you will have some recondensation in your felt.

MR. PACKARD: I think we lost sight of one important thing in the placement of that felt dryer. Now, suppose for example that you have six dryers, with a paper running over them. Now, the felt comes from that last dryer and goes down and back. That dryer felt is full of moisture and hot. In that condition it is going to have, per square foot of area, a rapid evaporation. Right next to the felt, we may say, it is high temperature—it is one hundred per cent humidity. As it goes along, that heat dissipates from the evaporation. If you place your felt dryer half-way distant on the return then you reheat that dryer felt, and regenerate its capacity for evaporation—generating, so to speak, 100 per cent humidity right next to the dryer, and so cause that moisture to go off more rapidly because you have the time element between its reheating in the middle, and where it goes to the first dryer to give an extra impetus of evaporation to make the felt dryer by the time it comes on to the first paper dryer.

Now—bringing up your point of temperature: It has always appealed to me that placing it in that position, it is neat enough to the first dryer, where it enters with the sheet again, to maintain the high temperature, so you don't have any trouble.

MR. ROSLUND: I realize, Mr. Packard, that sometimes I argue against my own point. In this respect I will tell you why. That felt when it comes back to hit the paper again, naturally has a temperature much higher than the incoming sheet. As a matter of fact, it is generally much hotter than the first dryer. Take, for instance, book or coated paper where they have a sheet which has a tendency to stick to the dryers and pick. The first dryers generally run rather cool—say around 140 degrees. Now, almost any felt will have a temperature, possibly, I should say, of at least 175 degrees, probably 180 and up to 200.

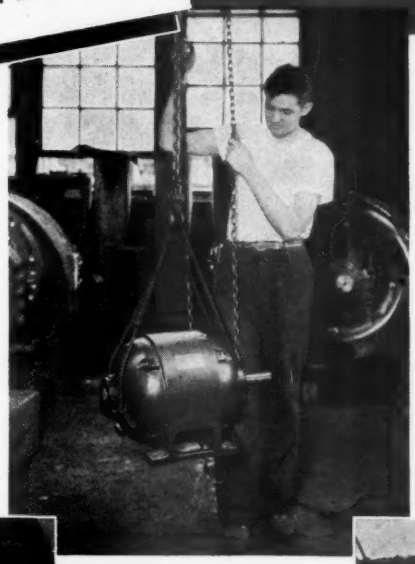
But the reason I want to have the felt dryer down towards the wet end, is that it more less frees up your water, in the felt. If you let it become too cold on the surface it condenses the vapors in the felt into the center, and it is going to take two or three dryers before you get to a temperature where you

SEE HOW YOU SAVE TIME WITH THE TRI-CLAD MOTOR

REG. U. S. PAT. OFF.

Extra Convenience Features

help you get the Tri-Clad motor into service faster—keep it in service with less attention.



1. Easy to Handle

They can be moved into position easily because of their light weight and compactness. The shape of the bearing housings and the location of end-shield fittings make it easy to handle Tri-Clad motors with slings. In addition, they are sturdily built and do not have to be coddled.

2. Quickly Mounted or Altered

Their feet are machined accurately and drilled for standard mounting bolts. The reversible stator puts the roomy conduit box on the most convenient side and the end-shields can be rotated to any of four positions to meet mounting requirements.

3. Easy to Wire

A large, four-position conduit box gives unrestricted working space. It can be quickly removed for wiring. Flexible leads are pressed on the terminals which are permanently identified. No soldered connections are necessary. A stainless-steel, graphic connection plate is conveniently located on the conduit-box side of the motor.

4. Convenient to Lubricate

All Tri-Clad motors have a large oil or grease capacity. On sleeve-bearing motors, the oil-filler gage can be located on either side of the bearing housing. A spring cover on this gage permits quick checking of the oil level. On ball-bearing motors, a pressure-relief greasing system assures rapid and thorough greasing.

BUILT FOR PROTECTION FIRST . . . TO LAST

Extra Protection 3 Ways

HELPS ASSURE LONG SERVICE LIFE

Production interruptions are avoided and operating time is saved when the motor you buy can stand up under the many adverse operating conditions commonly found in industry. Tri-Clad motors meet these conditions with—

1. ***Extra Protection*** against physical damage
2. ***Extra Protection*** against electrical breakdown
3. ***Extra Protection*** against operating wear

The new General Electric Tri-Clad motor is a cinch to install. Its convenience features pay off in precious minutes saved—both for those who build motors into machines and for those who use them in a plant.

Next time you order motors, take ***time-saving*** into account, along with protection and performance; make sure you get Tri-Clad motors—now available in a wide range of types and integral horsepower sizes to 20 hp.

Write for Bulletin GEA-3580 which gives full details about these extra protection features and other Tri-Clad motor advantages.

GENERAL ELECTRIC

750-81-8058

can start to evaporate moisture from the felt itself. These are the things that are very difficult to definitely define, and you therefore have to come to a point where you see dozens and dozens of installations, and you finally work out the theory in your mind. Now, whether it is quite right, I don't know—but it almost becomes second nature. You feel that it should be so. Right or wrong, I have always found it to make good discussion.

Unfortunately, there hasn't been any study made on the theoretical working of a dryer felt.

CHAIRMAN BENNETT: Well, that is a matter of difference of opinion. How much do you think that felt shrinks and stretches during its trip around—during each revolution for instance?

MR. ROSLUND: That naturally depends upon how long the felt is.

CHAIRMAN BENNETT: Well, say in percentage?

MR. ROSLUND: Well, I happen to have one instance where I have seen that. A fellow was interested in finding that out but you can't very well find it out in the stretcher because it isn't so prevalent there, so he made a hookup with a rather sensitive roll on a felt that was 198 ft. long. I believe we had a difference in length when the felt was wet and when it was dry of 36 inches. We broke down the sheet and let the felt dry out for about 15 minutes, and this felt shortened up 36 inches.

CHAIRMAN BENNETT: Yes, but what I mean is—on its trip around while it is up against the paper, half the felt is against the paper, let us say, and half is coming back through the air. This half of the felt—how much difference is there in the length of that, at that time, and at the time it is out in the air on its return trip? The time is short, of course, but there is some shrinkage and stretch.

MR. ROSLUND: I wish I knew that. There is no evidence at all when the paper is going over, because if that would be the case, your automatic take-up would fluctuate, it would go up and down.

CHAIRMAN BENNETT: No. Your over-all length would be the same. There is evidence of it, because if you have driven felt dryers, for instance, you could notice slippage on your driven felt dryers, because it would stick to your paper dryers. Say, for instance, you have several paper dryers. The felt has a lot of area of contact on those. Then it goes over a driven felt dryer where it has a smaller area. Naturally, it is going to slip on the smallest area. I have seen it checked by having a variable speed drive and letting it loose and letting the felt itself drive the felt dryer and notice the slippage on the dryers.

MR. ROSLUND: I have no idea on that. I can't answer that. I wonder if anybody has checked it accurately. All we knew was that there was some breathing there. There would be because in the first place your felt is driven through the paper. There is evidently slippage between the paper and the dryer, as when there is slippage between the paper and the dryer too. We know the paper shrinks. I always call it "breathing"—coming and going—all the time. But just how to measure that, I wouldn't know how.

CHAIRMAN BENNETT: Did you ever run into that Mr. Denison?

MR. DENISON: I never had the occasion to see it measured. It is probably advisable to have a weighted stretch roll rather than a screw operated stretch roll on the hole.

CHAIRMAN BENNETT: What do you think about that, Mr. Sutton?

MR. H. M. SUTTON: (Bagley & Sewall Company): I think that is right. It should have a weighted stretch roll to compensate for the difference in the run of the felt.

MR. ROSLUND: May I ask a question of any of the gentlemen here? Do you know or have any experience with the proper tension on the dryer felt in pounds? Mr. Packard, do you know?

MR. PACKARD: Well, it varies, depending upon the condition, the weight of the paper, the speed of the machine, and of course, with the automatic weights down in the basement it keeps whatever tension you place on that constant, so I think that a man running the machine is his own best judge. He looks at the sheet and he looks to see if there are any cockles. If you develop cockles and you get your steam condition and your temperature right, you have got to have your felt tighter.

CHAIRMAN BENNETT: That is opening up a subject for considerable variation in opinion, and maybe Mr. Ayres can give us some thoughts on that.

MR. AYRES: Mr. Barea and myself are just discussing that it depends on the machine tender operating that machine.

MR. ROSLUND: That is one of the reasons I asked the question. I have been asked by so many men in the mill, "Isn't there a set figure to run at a certain tension?" They wanted to know that so they could design weight leverage for a certain tension. I have asked Beloit, and Beloit has asked me, and we could never get together on it. But I have seen one figure written down, and I don't know whether it is prevalent or not, but this amounts to four pounds per lineal inch of width.

MR. PACKARD: I think there are some variables in the thing, as the other gentleman referred to—a good deal depends on the machine tender. He adjusts the tension to get the sheet out that he wants, is that right?

MR. BAREA: That is right.

MR. ROSLUND: I think a machine builder should put some device on so you could tell just about what tension you had, and I think we would be greatly helped by it. Then you could check up on the machine, whether it is 2 pounds or 3 pounds or 40 pounds—if they had some kind of a recording measurement.

MR. PACKARD: If you had a device of that character so that a man becomes accustomed to run at a certain tension, it might be of real help to him in subsequent operations on a particular grade of paper.

CHAIRMAN BENNETT: We have a question from a member who wants to know if anyone has had any experience with dryer felt seams going crooked for no apparent reason. (Laughter.)

MR. ROSLUND: Well, I think that can be answered. If they respond to Mr. Denison's suggestion about felt dryers they shouldn't have any trouble, and in addition, to keep up their machines in fairly good running order and the rolls in alignment they would have no trouble. Most of the time it is due to uneven drying conditions on the machine.

MR. C. D. DE MERS (Taylor Instrument Companies): The felt manufacturers actually measures the tension on the felt when it leaves the plant. We have sold instruments within the last year to two well-known felt manufacturers, and they all go to a definite standard tension on their looms, and then on the stretch later, and we have sold one paper company an instrument for recording the tension on the wet felt of the press on the machine, so they are operating to a definite standard in pound tension.

CHAIRMAN BENNETT: You don't happen to know what the tensions are?

MR. DE MERS: On one—about a 30 foot felt—5,000 pounds on each end.

MR. DENISON: Did you translate this into per pounds per inch?

MR. DE MERS: Yes. This is about 130 inches wide.

MR. SUTTON: Go back to your presses and see that there is uniformity so that your sheet has uniform moisture. If your presses aren't putting the moisture uniformly across the sheet going into a dryer, that will change the moisture in front of your dryer felt, making the sheet wetter on one spot than the other and making the seam go crooked. You can check your presses.

Camas Man Pitches No-Hit, No-Run Game

● Ray Orteig, formerly of the converting department, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, now with the United States Coast Guard at Seattle, pitched a no-hit no-run baseball game for the Coast Guard on Sunday, August 16th. Francis Reierson, formerly of the printing department of the Camas plant, was the second member of the Coast Guard battery.

Mr. Orteig's baseball career started with the Camas high school team where he played various infield positions. Later he attended Carl Mays baseball school at Portland, Oregon. In 1940 he was purchased by the Boston Red Sox and was farmed to the Scranton, Pennsylvania, team. The following year he played with Canton, Ohio. Before completing the season he returned to the state of Washington, joining the Vancouver entry in the Western International league. He played third base with the professional teams and first worked on the mound consistently this summer.

Hanny Vacations In Hospital

● J. E. Hanny, resident manager, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, commenced his two-week vacation on July 28th, much of which was spent in the St. Vincents hospital at Portland, Oregon, where he was subjected to a minor operation.

Business Men Work Four Hour Shifts in Mill

To relieve labor shortage in the Hawley Pulp & Paper Company's plant.

● One of the changes within the pulp and paper industry resulting from the general shortage of workers has been the employment of four-hour shift workers. These are men regularly employed in other occupations or professions. By the first of September about ten "white collar" men who normally devote their gainful efforts exclusively to banking, selling, education, and barbering were working four-hour shifts in the finishing room and machine shop at the Hawley Pulp and Paper Company, Oregon City, Oregon.

The first seven men starting work on these short shifts are: J. B. Foster, office manager, Hogg Brothers furniture store; Franklyn Miller, Burmeister & Anderson jewelers; Frank Chase, U. S. National Bank; E. Woodworth, school superintendent of Clackamas County; James Veatch, manager, Portland Gas & Coke Company; Ray Reid, barber; and C. A. Blodgett, chief of police.

This program was planned by R. A. Blyth, manager of the Oregon City office of the United States Employment Service, who gathered the business men and requested that they relieve the labor situation by working a four-hour night shift at the paper mill. He said, "Without these mills the population of Oregon City would be sadly decreasing."

The Oregon City Banner-Courier of August 28th ran the following editorial regarding the four-hour shifts and the workmen:

"The laboring or white-collared folk in industry for four or five hours after completion of their regular day's job may mean the salvation of some industries unable to compete with war industries in the matter of pay.

"There are many jobs which these Main street business people can handle in the mills to relieve others for the heavier labor, and the ability of extra help is not greatly impaired by reason of having completed a full day at some other, non-muscular, task. Employment officials believe that the doubling up will not be deleterious to either job as the physical labor in extra hours complements rather than injures the person whose ordinary pursuit is mostly of mental strain.

"Let it be said right now that this idea was conceived in Oregon City and first put in practice here. R. A. Blyth, manager of the local office of the U. S. Employment Service, advanced the idea and the Hawley Pulp & Paper Company put it into practice. There are now several Oregon City business and professional men at work in the Hawley mill.

"Relaxation of wage and hours laws and union rules have been necessary to permit this plan of operation. Normally, the wage and hours law would forbid the working of any person more than 40 hours weekly, whether for one employer or two. Unions, to protect the jobs of their members, would have stopped any such employment of downtown people in extra work. Each of these agencies have agreed that they will forego their rights because the operation of the mills would be hampered otherwise.

"D. E. Nickerson, executive secretary of the state federation of labor, says these part-time workers must affiliate with the unions, entering the 'agreement with the understanding that they will clear through the unions involved.' This is not expected to affect the desire of those wishing to help out as patriots, despite their feelings for or against unions."

The management has found these short-hour employees to be surprisingly satisfactory.

MD Tissue Men On Big Fishing Trip

● Pete Onkels, superintendent of the Pacific Coast Paper Mills, is telling fish stories since his return from a ten-day cruise to Stuart Island in British Columbia. Leaving Bellingham in mid-July, the party journeyed through the San Juan Islands and then swung north to the fishing grounds of upper Straits of Georgia. They travelled in Dr. George Ellsperman's forty-five foot cruiser, fully equipped to catch anything that swims, and from what "Pete" says, none of the party was disappointed.

Cy Gates, Joe Hillier and Pete Onkels made the trip from the paper mill. While on the way they met Gus Ostenson, paper mill superintendent of Crown-Willamette of Camas, who was enjoying the beauties of the San Juans.

CAMAS RAISES BULL'S EYE MINUTE MAN FLAG on August 20th. With 100% of the employees of the Crown Willamette Paper Company, Division of Crown Zellerbach Corp., applying more than 10% of their pay to the purchase of War Bonds, the mill is the second industrial concern in Washington to receive the Treasury's insignia of achievement.

At the flag raising ceremony, left to right, HENRY GREGERSON, Chairman, payroll deduction division of the Clark County War Bond Committee; J. E. HANNY, Resident Manager of the Camas mill; HARVEY M. PACKER, U.S.N., and WILLARD THOMPSON, U.S.A., Camas employees now in the service who were home on leave at the time.

Clipper Shipments Repacked In Paperboard to Save Space, Weight

Pan American Airways saves 500 pounds per Clipper trip through use of corrugated cartons instead of wood.

● Paper's part in the war is becoming more and more important. Its latest contribution plays an important part in assuring speedy delivery of maximum cargo shipments of supplies to vital areas.

With air express and freight shipments rapidly mounting in size and weight, Pan American Airways' base on Treasure Island, in San Francisco bay, has found a recoopering department and the use of paperboard cartons essential to speeding up the air transportation phase of the war effort.

This new development recently was created when a particularly large air shipment was presented. It consisted of six crates with a combined weight of close to a ton. The cargo handlers noted that approximately one-third of the weight was comprised of bulky wooden packing cases.

The heavy protection originally was required to guard the contents against knocks and bumps incidental to truck and railroad handling. But air shipments are different. Packages going aboard a Clipper are individually handled with care and lashed down aboard ship to avoid all possibility of shifting or jostling.

Pan American concluded, therefore, that heavy wooden packing cases not only are unnecessary for air shipments, but needlessly build up weight and occupy valuable storage space. The U. S. Navy, shipper of many large cases and crates, agreed it worthwhile to examine each shipment, to see if weight could not be reduced by recoopering or repacking.

After a few days' observation had proved the case, the Navy assigned a chief carpenter's mate and an assistant to permanent duty at the San Francisco base. Their job is to remove wooden cases from shipments and repack the contents in paperboard cartons.

Thousands of pounds of weight already have been saved by this simple expedient. Since every Clipper in these urgent times is loaded to the last ounce of its capacity, with plenty left behind in the cargo room for the next departure, the saving would be significant even if it amounted only to a few pounds.

Actual checking has proved, however, that recoopering and the use of corrugated containers produces an average saving of about 500 pounds per trip — a weight-space which immediately becomes available for additional cargo.

At the same time, it was pointed out that recoopering saves shipping charges for consignors, since charges are based on total weight, including containers. Thus the weight saved in recoopering cargoes for air shipment becomes a direct financial gain for the shippers.

War Extending Use of Paper In California

● Government priorities, ever-increasing demands for fabrics, and the constant search for substitutes, is being reflected in the California paper market.

Products parceled in paper are showing a marked and consistent increase in number and variety, as the scarcity of burlap and cotton becomes more acute. Although the WPB has released some of the fabrics immediately frozen with the outbreak of hostilities, experimentations had proved paper not only a practical substitute, but in some instances superior in service and less costly.

Many of the fish reduction plants along the California coast now are using paper for sacking fish meal, some of them for the first time this year. Much of the state's fruit, vegetable and grain crops is reaching market in paper containers, and extensive experiments to further this development are under way.

One plan, designed not only for conservation of vital materials but also respective of the shortage in manpower, is parceling potatoes in 25-pound bags in the harvest fields for direct delivery to consumers through regular channels, alleviating the necessity for rehandling and packing. If it proves successful with spuds, many other agricultural products immediately will be packed under this labor-saving plan.

All paper bag producers in the San Francisco area are finding increasing demands as their products reach out into new, and in many cases, heretofore unexplored fields.

C. T. Young, Bemis Bros. Bag Company, manufacturers of burlap and cotton, in addition to paper bags, reported "an appreciable increase" in the paper department during the past several months. This is especially true, he said, in the production of multi-wall bags.

Increased demand for paper bags is not credited by Mr. Young entirely to the war effort, but is due in considerable measure, he believes, to a development which has been going on the past couple of years.

Schmidt Lithograph Service Men Kept Posted

● The 45 former employes of San Francisco's Schmidt Lithograph Company already in the service, and others who will follow, will know all the news from home. Their co-workers on the home front will see to that.

Employees have devised a comprehensive personal information service, probably the most complete of any private enterprise in operation, to keep their boys fully informed, happy and assured that they have not been forgotten by friends back home.

Each month they publish a fat mimeographed News Letter containing news about fellow workers—marriages, births, and intimate items whipped together in interesting gossipy fashion, together with excerpts from letters from men in camps and foreign lands. This is sent to each of the men represented by the 45 stars on the company's Service Flag.

A carefully compiled list is kept on the birthday of each man, and a notice appears on the bulletin board when it's imminent. Hence, the birthday of each lad is remembered with greetings.

Women in the plant are making sewing kits and utility bags, presented to each man when he leaves for service, and at Christmas time they plan to send gifts to each of their absent heroes.

In addition, the employees association is getting up a set of index cards, alphabetically arranged, each card containing a picture of the subject, his name and most recent address. A complete set of cards will be sent to each soldier, sailor or marine, so he will be able to keep in touch with old friends.

Carl J. Schmidt reported that already in several instances the employees cooperative plan has been instrumental in bringing together former fellow workers, stationed in the same camp but unaware of the other's whereabouts until word arrived from the ever alert home front.

LaHusen Works on Farm During Vacation

● George LaHusen, personnel department, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, West Linn, Oregon, worked out on a farm in Marion County during his vacation, helping to alleviate the shortage of workmen in agriculture.

Carl Anderson Has a Baby Daughter

● The machine room crew at the Puget Sound Pulp & Timber Company was smoking cigars last month in honor of a new daughter in the home of Carl Anderson, machine tender for the company. The little girl, Irene, arrived at St. Luke's Hospital in Bellingham on the 26th of August. Carl reports the whole family as well and pleased.

A Plan for Post-War Foreign Trade

● We read in the July 31st issue of "The World's Paper Trade Review" of a scheme personally advanced by an official of the United States Department of State for promoting foreign trade after the war. As the plan is of interest to American wood pulp producers we quote the "Review's" editorial in full.

"In the recent report upon the post-war organization of international economic relations compiled by the London Chamber of Commerce one of the fundamental points was that mass production must imply mass consumption. Mr. Herbert Feis, an official of the American State Department, has made some constructive suggestions as to the way such mass consumption can be promoted. His article (reprinted by The Times) represents his personal views and is not to be taken as committing the U. S. State Department.

"The writer is concerned with the means to be employed to finance international development after the War. Reduced to its simplest terms, his proposal is that at the beginning of each year the American Government should set aside a designated sum of dollars, say three or four billion, which would be allocated among the countries for various specified purposes. To the extent that each country drew upon its allocation it would in return make available to the United States a corresponding sum in its own currency at a fixed rate of exchange. If at the end of a specified period, say two years, any of the foreign countries had not used all of the dollars allotted to it, the unused remainder would be cancelled.

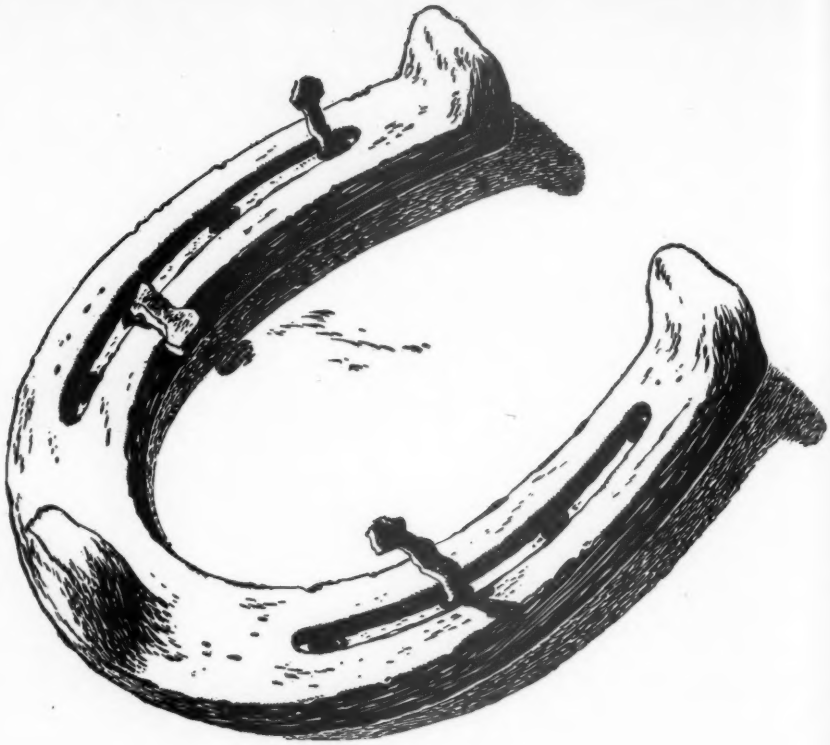
"Similarly, if the U. S. had not used the full amounts of the credits in foreign currency received in exchange, the remainder would be cancelled. The arrangement would be self-liquidating and —what is most important—no permanent debt would come into existence. Mr. Feis recognizes that the system envisaged would have serious defects if it were confined to the United States and the recipient countries; accordingly he suggests that it be developed into a system internationally organized and administered. The writer believes that such an arrangement should serve to establish a minimum assured basis for the movement of goods, thus increasing the stability of world trade and lessening competitive pressure to export.

"It should also lessen the injurious effect of trade restrictions and stimulate the inclination of each country concerned to find ways and means to absorb products from abroad; it could be used to give special assistance to countries passing through a difficult phase; and, finally, it could be so shaped as to help those countries which in the past have participated in world trade on unsatisfactory terms, thus making it less likely that they would become centers of discontent and political unrest."

Bowling Gets Under Way at Bellingham

● Bowling is back on the sports calendar of the Pacific Coast Paper Mills of Bellingham. A team made up of Jeff Marette, Pete Onkels, Frank Bloch, Bill Dynes and Joe Hillier is entered in both the City Major League and in the Commercial League. These k e g l e r s have bowled together for several years and during that time have taken three city championships.

PAPERBOARD SPEEDS OVERSEAS AIR FREIGHT SHIPMENTS . . . Chief Carpenter's Mate, A. T. JONES, U.S.N. (left) and KURT HAUXTHAUSEN, PAN AMERICAN AIRWAYS' cargo supervisor, examine pieces of air cargo being repacked at Treasure Island terminal, San Francisco, for trans-Pacific shipment. Paperboard containers now replace heavy and bulky wooden boxes, saving about 500 pounds and considerable carrying space per Clipper trip.



LUCK helps...

but you can't run a business on it

The man who always "gets the breaks" isn't lucky; he's progressive. He makes his own luck because he has the initiative to try new ideas, new methods. He realizes today's production winner can be an also-ran tomorrow. The Shell man talks his language.

That's why purchasing and production executives go out of their way to pump our men for new ideas. They have found Shell men to be more than mere sellers of oils and greases.

Have you talked to a Shell man lately about balanced lubrication? He may be able to help you, as he has others, to increased production, longer machine and tool life, improved finish.

SHELL *INDUSTRIAL LUBRICANTS*

* * * * *

SHELL

Trade Talk

of Those Who Sell Paper in the Western States

Van Vlack Assumes New Duties with BM&T In Los Angeles

● George Van Vlack, for more than 40 years associated with the Los Angeles division of Blake, Moffitt & Towne, has taken over the care of paper inquiries and problems for the company in the Southern California city. Mr. Van Vlack's long experience with the printing paper department in various sales capacities well qualifies him for the new position. He also will assist in the sales direction of printing papers.

Its Now Sergeant Edgar Colton

● There's a proud and happy father in the San Francisco offices of Zellerbach Paper Company. He is Louis A. Colton, vice-president in charge of the purchasing department.

Happy because of a pleasant surprise visit from his son, Sergeant Edgar Colton, home on ten-day furlough from Fort Bliss, Texas. Proud because of his son's record and rapid advancement in the armed forces.

Enlisting as a buck private April 7, Edgar, represented by one of the service stars in the Zellerbach banner of honor, entered training at Camp Barkley. Officers, impressed by his proficiency in mental tests, tossed him no less than nine tough examinations in rapid succession. His average rating reached fractions higher than 97, won him promotion to Sergeant Technician, Fourth Class.

Papa Colton is justly proud of his soldier son and his pride is shared by the entire staff of co-workers in the Zellerbach organization.

Ahern Joins Magnesium Firm

● C. D. Ahern has resigned from the sales department, San Francisco offices of the Everett Pulp & Paper Company, to join the traffic and purchasing department of Basic Magnesium, Incorporated, near Boulder City, Colo. Mr. Ahern, accompanied to Colorado by his wife and infant daughter, was employed at the Everett mills for some time before joining the company's San Francisco sales staff six years ago.

Blackley Visits Coast Customers

● William J. Blackley, vice-president of the Beverage Paper Company, Indianapolis, Ind., was in San Francisco several days recently on his annual Western trip. His many friends in the industry were glad to learn that he is rapidly recovering from a major operation which he underwent in June.

Zellerbach Paper Employees Deep In the War Effort

● To "work, fight, give to make Democracy live" apparently is an inherent policy of the Zellerbach organization and family in California. The enthusiastic groups of "ten percenters" rapidly are expanding their ranks in the pay-day program to purchase war bonds and stamps.

The Zellerbach Paper Company has just printed a new Honor Roll containing 112 names of employes already with Uncle Sam's Victory forces. Artistically designed by Glory M. Palm, of the advertising department, and printed in red and blue on a white background, scrolls have been framed and now occupy prominent places in the executive offices.

The list includes the name of Captain Melville Baruh, U. S. Air Corps, formerly in the San Francisco fibreboard department, a cousin of Harold L. Zellerbach, president of the company.

Not listed, however, is the president's son, William Zellerbach, an Ensign in the Navy, who went direct from University of Pennsylvania to enlist in the service.

Another member of the family soon to be in uniform is J. D. Zellerbach, Jr., son of the venerable president of Crown Zellerbach, who has enlisted in the U. S. Air Corps and is awaiting call. Mr. Zellerbach is married and the father of a small child.

Zellerbach Man Wins Warren Sales Contest

● Honors and a vacation trip East came to Roland O'Farrell, San Francisco sales division of the Zellerbach Paper Company, winner of the annual Warren sales contest. He attended the Warren convention at Portland, Me., September 13 and 14, and inspected several large eastern mills. Runner-up in the contest was Earl Burchfield, also of the San Francisco sales division.

Richardson Enters Officers Training

● Forrest B. Richardson, salesman for the Zellerbach Paper Co., at Aberdeen, Washington, entered an Army volunteer officers corps training school in August. Mr. Richardson was a city councilman in Aberdeen.

Harold Gidner, formerly of Seattle, succeeded him as the Grays Harbor representative of the Zellerbach Paper Co.

Bert Newman On Eastern Trip

● Bert Newman, sales manager of the printing paper department, San Francisco office of Zellerbach Paper Company, is on an extended eastern trip, visiting various mills. He attended the Hammermill Paper Company convention at Erie, Pa.

"Paper Shortage" Still Alibi of Many Retailers

● Ultra-conservation is pilfering paper profits in the San Francisco area, where dealers and jobbers admittedly are becoming unwitting victims of Uncle Sam's and their own pessimistic predictions.

Early in the era of priorities, the government, pointing to its great and growing demands, warned against a possible paper shortage. The industry, in a spirit of patriotic cooperation, passed the word along. But the anticipated shortage failed to materialize.

Meanwhile many California retailers encouraged customers to carry merchandise sans bags or unwrapped, and some, over-zealous, even educated patrons to return for re-use paper bags and wrappings. Now that the prophesied paper shortage seems further removed than ever, retailers have learned that there's profit in this type of "patriotism."

There seems little likelihood of discouraging the re-use of bags purely from the standpoint of a threatened menace to public health.

Approached with the problem, Dr. J. C. Geiger, San Francisco Director of Public Health, said although "aesthetically it is a very bad practice which, by all means, should be discouraged," he found in it insufficient menace to public health to warrant immediate official action "since it is a well established fact that paper is a non-conductor of bacteria."

In the interim, the practice has grown to such proportions that jobbers have taken cognizance of the situation, and in some of the more cooperative shops two-color placards are beginning to appear. They announce:

"To Protect Your Health, we Parcel Your Purchases in NEW SANITARY Bags and Wrapping Paper. Paper is Now Available for Essential Needs."

Herb Chrisholm, advertising manager of Blake, Moffitt & Towne, is considering some similar idea which as yet has not reached maturity.

G. J. Ticoulat, sales manager of Crown Zellerbach, sights no immediate shortage, urges the public to "use paper sensibly," and is diametrically opposed to "foolish conservation" which in many instances has become faddish.

While all dealers generally appreciate the seriousness of the scarcity scare, the convenient dodge behind which some retailers have found profitable refuge, no direct cooperative campaign to counteract it has yet been developed in California.

Job Instructor Training

by R. H. WILLIAMS*

PRIOR to the United States entering the War, many industries were busily engaged in defense production—producing guns, tanks, planes, ships, etc., for the purpose of preparing this country for its protection. Accordingly, these defense industries rapidly absorbed the available skilled mechanics in the various crafts who were not employed in the industries of the country, normally operating during peace times.

Then, when this country became involved actively in the War after December 7, 1941, it became necessary to change from defense production into war production in our various industries. These industries had to expand and to produce at their greatest capacities the necessary materials for a highly mechanized warfare. It was found that as far as the obtaining of skilled workers was concerned, we were at the bottom of the bucket. We were in this position due to ten years of industrial depression which brought the training of new men to a standstill; also many apprenticeships and vocational training programs were discontinued.

The problem confronting industry was, how could it take green untrained workers, and quickly prepare them to handle a job, or some part of a job, that would permit industry to get into, and up to production on these vital war needs, keeping in mind that the TIME IS SHORT for equipping our armed forces with the essentials of offensive warfare.

It is estimated by some authorities that by the end of 1943, the war production industries will be using approximately 20,000,000 people, 90% of these people will have to be trained on the job, and 38% of this work is skilled. This training will have to be done on the job by supervisors, foremen, leadmen, etc.

The Training within Industries division of the War Manpower Commission, recognized this problem, and with the cooperation of many executives in some of the large industrial corporations, a plan of training was formulated. It is known as Job Instructor Training. This type of training was developed through studying the problems which caused waste of time, materials and money in war production. The biggest difficulty has been the inability of a large percentage of supervisors and foremen to instruct new workers quickly, correctly and efficiently to do a job. It was soon found that a plan of "How to Instruct" was needed to take the place of the old hap-hazard methods that are generally used.

The outline for Job Instructor Training is not new as it was developed during World War I and has been used in Vocational Educational fields since that time. It was originally developed by practical men in industry who drew upon their fund of experience in preparing the plan. Recently the executives of the Training within Industries division recognized the urgent need of this type of training, took this outline and streamlined it, which resulted in the present J. I. T. Program and Plan.

This type of training is available to prime contractors and sub-contractors engaged in war production at no cost to them. Before this training could be given others, it was necessary first to train a group of Job Instructor Trainers.

The Job Instructor Trainer attends a 20-hour Institute Training Conference conducted by a representative of Training within Industries division where he learns the techniques required and actually demonstrates his ability to conduct these conferences. The purpose of this training is to teach the supervisors, foremen and leadmen how to impart their knowledge of a job to some new man, or one who has been transferred from some other job or department on how to do a job or some part of a specific job. It does not attempt in any way to tell that supervisor, foreman or leadman how to do his job, as it is assumed he already knows that or he would not hold the position he does.

In considering what we will term the three M's of supervision, Materials, Machinery and Men, we find a large majority of supervisors and foremen have a full and complete knowledge of the materials and machinery they work with, but when it comes to imparting their knowledge of Materials and Machinery to the third "M"—Men—they are decidedly weak. Many supervisors and foremen have studied materials and machinery carefully to obtain the best possible results from them but very few of them study the men they supervise to see if they can correct their weaknesses; neither have they studied themselves to find out if their method of instruction actually is effective. The J. I. T. plan gives them a plan or tool which, if they use it, will enable them to quickly, correctly and efficiently impart their instructions to the worker to get him on the job and up to production in the shortest possible time, thereby avoiding waste in time, materials and money; and also making the learner aware of the hazards to his safety which could cause further waste, and delaying the war program by an accident to the worker, thus losing his services in productive effort during the period of his disability.

Job Instructor Training requires the Supervisor, Foreman or Leadman as a Job Instructor to prepare himself in two ways—i.e.—How to Instruct and How to Get Ready. First we will consider how to get ready. To instruct the new worker or an experienced worker on a new job, it is necessary that we have a plan.

How to Get Ready

● How much skill do we expect him to have, and how soon?

(Note) In other words when a new worker arrives for induction into a job, put in writing on the Job Breakdown Sheet (explained below) that you expect this man to know how to do this particular job or some part of it by a certain date. In other words, have a time table.

Analyze the Job

● List the principal steps.

Pick out the key points.

(Note) Analyzing the job requires that the instructor use a blank piece of paper, drawing a line through the center from top to bottom; name the part he is working on and the operation to be performed; then head the left-hand column "important Steps" and the right-hand column "Key Points"; as each step is completed, draw a line under it across the page; put in Key Points pertaining to the operation opposite in the right-hand column. List the important steps in sequence just as the job is done. These steps represent the 90% of a job that are the easy or routine parts of it. Picking out the key points—these key points are those points which are especially important such as the feel, knack, trick of the trade, hazard or special information concerning some step in the order of doing the job.

Having Everything Ready

● Have everything ready, the right tools, equipment and materials.

(Note) Set a right example for the worker, apologies for forgetting something, impairs the workers respect for the instructor.

Have the Work Place Properly Arranged

● Just as the worker will be expected to keep it.

(Note) The instructor should set the right example in good housekeeping before the learner so that the worker will not acquire bad work habits in regard to safety and cleanliness about his work station.

How to Instruct

● Four steps must be observed if proper results are to be obtained.

R. H. WILLIAMS, Describes Job Instructor Training

*Assistant Social Security and General Safety Supervisor, Crown Zellerbach Corporation and Rayonier Incorporated. Mr. Williams is also a certified Job Instructor Trainer with the War Manpower Commission. He was formerly Personnel and Safety Supervisor of Rayonier Incorporated, Shelton, Washington.

PROPERTY OF SEATTLE PUBLIC LIBRARY

Step 1—Prepare:
Put him at ease,
Find out what he already knows about the job,
Get him interested and anxious to learn the job.
(Note) The new worker is, in many cases, excited and nervous about his ability to handle a job and while he is in that mental condition it is practically impossible to instruct him. Therefore, it is very important to find out what he knows about the specific job to be done. He may have a general knowledge of occupations related to that job; a general question asked of him in a general sense would not therefore give the instructor the desired information. Getting the new man interested and anxious to learn is very important. This can be done by showing him how he can personally benefit from this training, and by appealing to his feeling of self-imoprtance by convincing him that his job is an important one having a definite place in the completed product and to the war effort as a whole.

Step 2—Present:
Tell, show, illustrate and question carefully and patiently.
Stress the key points.
Instruct clearly and completely, taking up one point at a time—but no more than he can master.
Check, question and repeat.
(Note) Following through this step several times makes it much more clear to the learner. It also makes it possible for him to pick up from the second demonstration something he might have missed on the first one. Remembering that telling or showing alone is not thorough instruction.

Step 3—Perform:
Test him by having him perform the job.
Have him **tell** and **show** you; have him explain the key points.
Ask him questions beginning with why, how, who, what, when and where.
Observe performance and correct errors, repeat instruction if necessary.
(Note) Asking questions beginning with why, how, who, what, when and where requires the learner to make a detailed answer. These questions should be asked on all key points in the operation. These questions, if asked differently, could be answered by "Yes" or "No." In questioning in this manner, the instructor does not have to assume the learner knows, his answer will show the instructor that he comprehends the instructions.

Step 4—Follow up:
Put him on his own.
Check frequently to be sure he follows instructions. Encourage questions.
Get him to look for the key points as he progresses.
Taper off extra coaching and close follow-up until he is qualified to work with normal supervision. In addition, the instructor should always tell the learner where to find him should he get into trouble so that he will not go ahead on his own and thereby create scrap or injure himself or the equipment he is working with. Every supervisor, foreman and leadman should always observe this fact:
"IF THE WORKER HASN'T LEARNED, THE INSTRUCTOR HASN'T TAUGHT."
The above methods of How to Get Ready and How to Instruct are passed on to the Supervisors, Foremen and Leadmen as Job Instructors by the Job Instructor Trainer in a total of 10 hours or given in five 2-hour group conferences. The Job Instructor Trainer is a certified trainer under the War Manpower Commission and if the Job Instructor at the end of 10 hours training meets his approval, he is certified as an Instructor by the same authority. In the war production industries, it is estimated that about 80% of the shop problems could be solved or at least helped by a better trained force. These problems could be classified under four headings—Production, Safety, Quality and Personnel Problems.

Many very prominent and practical industrialists throughout the United States have developed this program and plan. Some of these men are: Glen Gardiner, Forstmann Woolen Company; Walter Dietz, Western Electric Company; C. R. Dooley, Socony Vacuum Oil Company; M. J. Kane, American Bell Telephone Company; William Conover, U. S. Steel Corporation; and many others from the largest corporations of the country. On the Pacific Coast the men who have had a part in developing this program, along with those already mentioned, and who in addition have the responsibility of making it work are: Major General H. G. Winsor, of the Puget Sound Power & Light Company representing the Pacific Northwest area, and now director for Washington and Oregon for the War Manpower Commission; Mr. Leighton H. Steele, assistant district representative in Washington; Mr. Laurin E. Hinman, formerly personnel director for the Portland General Electric Company, now assistant district representative for Oregon and Idaho; Mr. A. R. Heron, of the Crown Zellerbach Corporation and

QUICK THINKING and a LITTLE INGENUITY on the part of Powell River Company officials resulted in the saving of a good deal of time recently in installation of a band mill wheel.

Harry Todd of the Vancouver office heard that Barnet Mills at Vancouver was planning to discard an old band mill wheel, and he also knew that Powell River Company had such a wheel on order, with very little prospect of getting the new one delivered for months because of priorities and other wartime regulations. Powell River had a Diamond head rig and at Barnet the wheel had been on a Clark head rig, but Todd put the question to Ross Black, Mechanical Superintendent, who made a trip to the Barnet mill, found the wheel was just the size needed and closed a deal for it second-hand.

At Powell River, Ross, Art Gardiner, Tony Chiarcossi and other experts adapted the old wheel to a Diamond head rig. The shaft for a Timken bearing had to be re-designed, but this involved no great difficulty.

The picture shows Ross Black (right) and Tony Chiarcossi beside the renovated mill wheel.

Rayonier Incorporated, representing the Pacific Central area; Mr. William R. Hopkins, of Columbia Pictures Corporation, representing the Pacific Southwest area.

Applying It to Pulp and Paper

● Crown Zellerbach Corporation and Rayonier Incorporated for the past several months have been conducting a number of specialized 30-hour courses in Safety Engineering for their employees in Portland, Oregon, at the Heathman Hotel under the direction of Mr. Otto R. Hartwig, Social Security and General Safety Supervisor of the two corporations, who is also chairman of the Conservation of Manpower for the State of Oregon.

These courses were at the expense of the company and were conducted from Monday straight through the week until Saturday noon. This plan permitted a complete 30 hours of training on Safety Engineering, with four hours left over for the injection of any other material deemed advisable.

In reviewing the Reports of Industrial Injuries sent in to Mr. Hartwig's office in Portland from the various divisions, it was found that the cause of a large number of accidents was due to "Incomplete Instructions, Lack of Instruction, etc." indicating that if the employee had been better instructed and told more about the "why" of his job and the hazards connected with it, he would not have been hurt. Accordingly, it was discovered that for years the Personnel and Safety Departments had been sending out reports, statistics, constructive criticisms, etc., through the division management to the supervisors and foremen to encourage them to operate safe departments; yet up to recently no one had instructed them as to how they were to accomplish the desired result.

The writer, who had previously been certified as one of the first three Job Instructor Trainers in the State of Oregon, was privileged to present an outline of Job Instructor Training at the request of Mr. Hartwig at these meetings.

The conferees attending these sessions, upon returning to the various divisions where they work, reported to their management concerning the value of J. I. T. The result was that the managers of all divisions of the two corporations who were already seriously contemplating using this training in their plants were encouraged to go ahead in having their supervisors, foremen and leadmen take this training. Mr. J. E. Hanny, manager of the Crown Zellerbach Corporation, Camas Division, has had two of his experienced supervisors, Mr. O. T. Defieux and Mr. Paul Millard take the Institute Training and these two trainers are rapidly developing Job Instructors at that division. Mr. Clarence Bruner, manager of Crown Zellerbach Corporation, West Linn Division, has selected two of his supervisors, Mr. Ralph Pratt and Mr. Arthur Lindsley, to take the Institute Training and they will in turn develop Job Instructors at that division.

Job Instructor Training should be a "must" in the tool kit of any supervisor, foreman or employee who is assigned the job of instructing others. It should be considered the most important part of the Induction Plan through which a new man is inducted into a job or where a regular employee working in one department has been transferred to another. Although there are several factors and much information recognized by many authorities as essential in inducting a person into an organization, they are based on the premise that the first hour of actual employment establishes the most lasting impression on the employee's mind. Still, it cannot be denied that after he has received all of this other information included in the induction procedure, he still has been hired to do a job, and to get him to do that job well and safely in the quickest time is the foremost desire of management and supervisors.

Remember this axiom—When instructing others, providing they are capable of understanding, that "IF THE WORKER HASN'T LEARNED, THE INSTRUCTOR HASN'T TAUGHT."

Coordinated Research a War-Time Necessity

● Last month E. W. Tinker, executive secretary of the American Paper & Pulp Association addressed an open letter to paper and pulp manufacturers. Wrote Mr. Tinker:

"As the result of contacts with governmental war agencies I am convinced that the pulp and paper industry is today faced with a grave responsibility and a great opportunity.

"The opportunity lies in the development of new paper products and uses to replace more critical materials needed for war munitions in all their ramifications. Paper and paper products should make a maximum contribution to the nation's total supply of vital war materials. The acceptance of the opportunity afforded will be entirely dependent upon the industry's willingness to devote all of its energies to investigating the fields in which new uses and substitutions are possible and by expanding its research facilities to develop the necessary products and the techniques for the productions of these products.

"The responsibility is that of every American industry to make the utmost contribution to the war program, regardless of any difficulties or other factors which may be involved. Maximum use of ingenuity and courage, especially in entering new fields, is required.

"Pulp and paper are adaptable commodities, perhaps the most adaptable in the world. The possibilities appear almost unlimited and I believe that an infinitely greater number of uses than are now known have yet to be discovered and developed. It seems to me, therefore, that the industry should without delay turn its tremendous energy and scientific ability to the development of new papers and uses for paper which will be essential to the war effort and the war-time civilian economy, particularly where this will result in substitution for more critical material.

"It is our conviction that the development of new products whether for military uses or for other purposes must be primarily a task for private industry. Public agencies give evidence of great willingness to cooperate with the pulp and paper industry. The problem is on your door-step.

"The Association hopes that it will develop into a primary war-time project through the investigation and development of such new uses for paper that will make a maximum contribution toward winning the war."

The industry's opportunity is truly great as Mr. Tinker points out. Some new products and some new applications have already extended the usefulness of pulp and paper in the war program, and more are undoubtedly on the way. Where does the industry's research work stand today and what war-time needs are most pressing and show the greatest opportunities for the industry?

Industrywise we don't know the status of our research work. Nor do we know of all the war needs that pulp and paper might meet through ingenious adaptation. Research work is largely on an individual company basis. Duplication of study and experiment is inevitable. Progress is too slow. Duplication of research is a luxury of peace-time. Its elimination is a necessity of war-time.

How can time be telescoped in the pulp and paper industry's research program? One research man suggests this procedure. First, we should find out what is needed that pulp and paper might satisfy. This survey can best be made by the Pulp and Paper Branch of the War Production Board, he thinks.

With the needs for substitutes defined, the Branch should call in the industry's research men, technical men and executives; outline the needs and take a poll on what work is now being carried on privately that will contribute toward producing pulp and paper products that will meet the needs specified.

By round table discussion the most promising opportunities for extending the usefulness of pulp and paper in the war program could be determined and the research work necessary to arrive at final conclusions outlined.

Then, suggests the research man, have the American Paper & Pulp Association and the Technical Association of the Pulp & Paper Industry take over the apportionment of the several phases of research among the industry's laboratories in consultation with the manufacturers, and coordinate the work to avoid duplication.

Only by open discussion of the present status of research and by the planning of future work upon the basis of the facts determined from such discussion, can the industry make the greatest possible progress toward developing new products and new uses in a minimum of time.

In other words he suggests we find out where we are, what needs to be done, what might be accomplished by research and then divide the research among those qualified to do it.

Coordination of the industry's research under active leadership should be started immediately.

General Electric Executive Visits Pacific Coast

● An optimistic picture of the Pacific Coast's place in post-war industry was drawn by Earl Owen Shreve, vice president in charge of apparatus sales, General Electric Co., Schenectady, N. Y., during his recent visit to the West Coast, where he made an inspection of local shipping and aircraft operations.

A. S. MOODY, Commercial Vice President of General Electric, Northwest District, looks over war industry data with E. O. SHREVE, Vice President in Charge of Apparatus Sales, Schenectady, N. Y., on his recent visit to Portland and Seattle.

"I have observed on my present tour of the west," said Mr. Shreve, "the great emphasis, from Seattle to San Diego, has been the development of a self-contained industrial structure which will give this region its highest manufacturing position in history when peace comes."

Mr. Shreve believes that undreamed of future aviation developments now on the drafting boads, will guarantee the Pacific Coast a foremost position in aircraft production. Shipbuilding, which disappeared from the west coast after World War I because steel had to be shipped here from the east, will remain a potent industrial factor after World War II as a result of steel mill construction under way in this region.

"We may expect in the post-war period that China's development will be phenomenal and the Pacific Coast will take the lead in supplying that great nation's needs." declared Mr. Shreve, "Although California, Oregon and Washington represent only about 8 per cent of the nation's population, they possess 30 per cent of all its potential hydro-electric power. Aluminum and magnesium being produced close to here, will replace many metals we use today. Out here, you have an abundance of power to develop these metals and I can see no reason why a number of new industries will not be developed."

Mr. Shreve spent several weeks touring the Pacific Coast before returning to his headquarters in Schenectady, N. Y.

Fred Simmons Vacations At Ocean Falls

● Fred Simmons, master mechanic, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, West Linn, Oregon, and his daughter Margaret made a trip to Ocean Falls, British Columbia, on his vacation the last two weeks of August. Mr. Simmons worked at the Ocean Falls plant several years before coming to West Linn.

Morseth Recovering From Strained Back

● Gordon Morseth, digester foreman for the Puget Sound Pulp & Timber Co., is now in St. Joseph's Hospital in Bellingham recovering from a severely strained back. Morseth cannot figure out whether he strained his back while on vacation at Sun Valley, lifting a blow valve bonnet or playing croquet at Sid Collier's home the night before he went to the hospital.

Sumner Iron Doing Important War Work

● The Sumner Iron Works of Everett, Washington, for fifty years prominent manufacturers of sawmill and pulp mill machinery, was one of the first companies to convert its facilities to war work. Early in the war contracts were made with the British Purchasing Commission for the production of Wilson-Pirrie type steering engines for British ships. When the U. S. Maritime Commission gave the go ahead signal on American Liberty cargo ships, Sumner was already in production and switched over without delay.

Sumner's original drawings from the British designs, patterns and jigs for steering engines were made available to other manufacturers when the American shipbuilding program got under way, thereby helping speed the program.

At the present time Sumner's production of steering engines and anchor windlasses is 9 times that at the beginning and supplies these machines for approximately 30 ships per month. All of the concern's facilities are employed, engineering department, pattern shop, foundries and machine shop, resulting in the production of 90 per cent of the parts going into the steering engines and anchor windlasses. Only the remaining 10 per cent is subcontracted.

Maritime Commission work now takes up about 97 per cent of Sumner's facilities, the balance being given over to servicing the essential needs of sawmill and pulp mill customers.

Besides producing equipment for the war program Sumner men are represented on the fighting front by 26 sons and one father.

SUMNER IRON WORKS OFFICERS. Recently elected officers of the Everett, Washington, machinery concern include, left to right, MILES S. MITCHELL, Secretary-Treasurer; FRANK F. SUMNER, Vice President; and E. I. FLATEBOE, President. Mr. Flateboe, who has been associated with Sumner since 1927, was General Manager until elected to the presidency upon the death of A. H. B. Jordan, head of the iron works for many years.

Papermakers Meet At Los Angeles

● A regular dinner meeting of the Papermakers and Associates of Southern California was held the evening of August 20th at the Clark Hotel in Los Angeles.

Chairman Charles G. Frampton, superintendent of the Fernstrom Paper Mills, Inc., Pomona, presided, and opened the meeting with a tribute to the late U. Grant Farmer, who was chairman at the time of his death in July. In respect to Mr. Farmer the men present stood with bowed heads for a minute of silent prayer.

William J. "Hap" Tillotson of the United States Gypsum Company, was program chairman for the evening and he introduced the two speakers. Dr. T. D. Beckwith, member of the faculty of the University of California at Los Angeles, spoke on "The Deterioration of Paper."

Dr. Beckwith serves as consultant for the world-famous Huntington Library at Pasadena, where some of the rarest and oldest manuscripts and books are preserved. Dr. Beckwith stated that one of the most common and objectionable phenomena of paper deterioration is "foxing," a development of brown spots that obscure the print.

His theory of "foxing," he explained, is that the action is similar to the formation of humus in the soil, and is due mainly to a reaction between cellulose and nitrogenous matter under proper conditions of temperature and humidity.

The second speaker, Alden C. Fensel, consultant to the California Taxpayers Association, spoke on "The Cost of Living Index." He explained how the index was worked out and how war conditions affected it.

Secretary-treasurer, Richard S. Buckley, chief chemist of the Fernstrom Paper Mills, Inc., Pomona, reports the following men attended the dinner:

Dr. T. D. Beckwith, Alden C. Fensel, A. Hatch, Bruce Brown, Jr., J. E. Hartford, Wm. R. Monette, W. J. Tillotson, Richard Buckley, Lloyd I. Ramsey.

Bruce B. Wallace, John Van Ounsem, A. S. Peterson, C. G. Frampton, Otto Sass, E. J. Toliver, G. Eberhard, W. P. Foote, George F. Ford, Carl T. Hering, J. S. Tillman, Walter D. Gahring, Robert Baum, George M. Cunningham, Jack Jamison.

Bruce F. Brown, Frank Whellock, F. E. Dilley, R. E. Cooper, J. W. Genuit, H. A. Vernet, Wm. A. Kinney, M. E. Campbell, George Zenick, A. M. Turner, K. H. Bearss, F. W. Adams, Wm. Belleman, and P. L. Armstrong.

Guests included: Ray G. Rashong, Elmer A. Lemire, J. Richard Anderson, B. H. Voss and K. Helge Holm.

Ed Wood's Son Admitted to Cal Tech

● Philip Wood, son of Edward P. Wood, technical director, Longview Mill, Pulp Division Weyerhaeuser Timber Company, Longview, and chairman of the Pacific Section of TAPPI, is one of the 160 freshmen accepted by the engineering school of the California Institute of Technology at Pasadena. He will enroll September 22nd as a chemical engineering student.

Cal Tech accepts but a limited number of undergraduate students each year, basing its selections upon the scholastic standing, character and personality of the applicants.

Through the years, we were designing and producing gears for full revolving cranes, like these of Colby Steel & Engineering Co., Seattle.

Today, we are building gears to elevate and turn large naval guns like the ones in the picture above.

Crane gears had to take the terrific strain of quickly swinging loads in either direction, and bear the shock of checking momentum.

Gun gears have to move fast, surely and withstand the concussion of rapid, heavy firing.

What we learned in building the right kind of gears for cranes is being used by us today in building the right kind of gears for guns.

In four major plants on the Pacific Coast we are supplying the gears and geared products for a great part of western America's industrial and military production.

The problems of war we solve today, will give you better gears, faster, in peace.

WESTERN GEAR WORKS
417 9th Ave. So.
SEATTLE

ASSOCIATED COMPANIES:
WESTERN GEAR WORKS—Lynwood, California
PACIFIC GEAR & TOOL WORKS—San Francisco
PACIFIC GEAR WORKS—Los Angeles, Calif.

"Hunk" Anderson Now Naval Officer

● Leslie "Hunk" Anderson, shift superintendent, Longview Mill, Pulp Division Weyerhaeuser Timber Co., Longview, left August 16th for Fort Schuyler, N. Y., for a course of training following his appointment as a lieutenant in the Navy.

Mr. Anderson was football coach and a teacher at the Longview High School before he joined the Weyerhaeuser organization.

Fidler, Millwright For Hawley, Dies

● Charles L. Fidler, 52, millwright, Hawley Pulp and Paper Company, Oregon City, Oregon, died August 29th. He came to Oregon City from Kansas in 1927 and became an employee at the paper mill in 1929, working as a chipperman. When the Oregon City chapter of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, Local 68, was organized in 1933, Mr. Fidler became a charter member and was elected vice-president of the local at that time. He became president in 1934, the position was held by him for two years. Several times he has been delegate to the wage conferences held with the Pacific Coast Association of Pulp and Paper Manufacturers and has also been a delegate to the Clackamas County Central Labor Council meetings. It was in 1935 that Mr. Fidler became affiliated with the maintenance department, where he continued until his death.

John Sherman, vice-president, International Brotherhood of Pulp, Sulphite and Paper Mill Workers, conducted the funeral services at Oregon City, September 1st.

The six pallbearers were employees and former employees of the Oregon City and West Linn pulp and paper mills. Three from Crown Willamette Paper Company plant at West Linn were I. J. Lavier, president of local 68; W. E. Riggs, secretary of the local; and J. A. Riggs. Ralph Gardner, chairman of the union standing committee; and Hazen Bernard, member of the standing committee, both employees at the Hawley Pulp and Paper Company plant, and Ray Ramsour, formerly of the Hawley mill, were also pallbearers.

Mr. Fidler is survived by his wife, Alice, two daughters and three sons. Two of the sons are employees at Hawley Pulp and Paper Company; Gerald Fidler, acid maker and Jack Fidler, works on the chippers.

Coast Men on Plywood Advisory Committee

● Three Pacific Coast pulp and paper mill executives have been appointed to the Pulpwood Advisory Committee of the Pulp and Paper Branch of the War Production Board.

The three men are Walter DeLong, operating manager, Puget Sound Pulp & Timber Company, Bellingham; D. S. Denman, vice president, Crown Zellerbach Corporation, Seattle; and Irving T. Rau, secretary-treasurer, St. Helens Pulp & Paper Co., St. Helens, Oregon. The first meetings of the new committee were held in Washington, D. C., the week starting September 7th.

The growing scarcity of pulpwood logs in the Pacific Northwest will make the work of this committee of fundamental importance to the continued operation of the pulp and paper industry.

Mike Price to Supervise Longview Fibre's Finishing

● Mike Price, superintendent of shipping for the Longview Fibre Co., was recently appointed general superintendent of shipping and finishing by R. S. Wertheimer, vice president and resident manager.

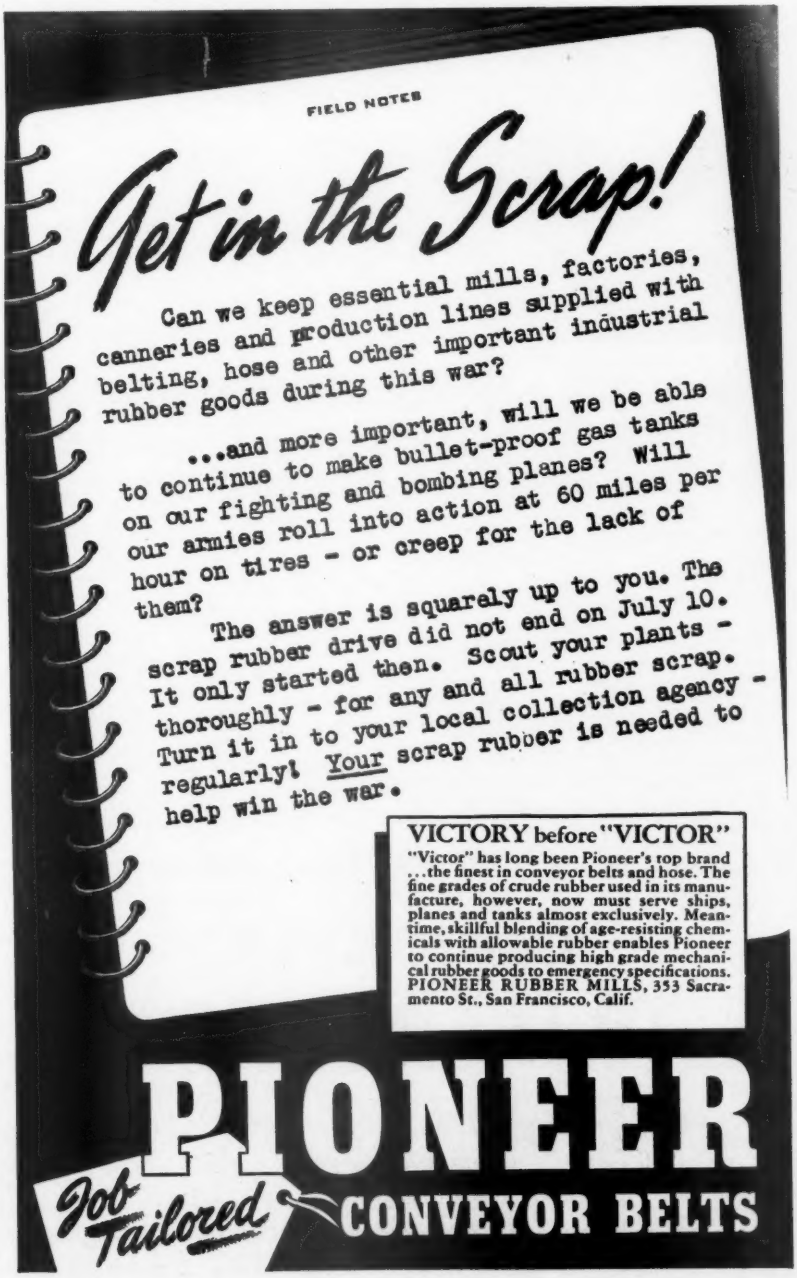
In addition to his previous shipping duties Mr. Price takes over the work handled by the late Ted Umland, who passed away August 23rd.

E. S. Umland Dies At Longview

● Edwin S. Umland, superintendent of the Longview Fibre Company's finishing room, died in Longview August 23rd following an operation.

"Ted" Umland came to Longview in 1928 to be a machine tender on the No. 2 paper machine, from the Thilmany Pulp & Paper Company at Kaukauna, Wisconsin.

Survivors include his widow, Hilda; two sons, William and Eugene, both at home; one sister, Mrs. Lucy Wolfe of Gary, Indiana; two brothers, Lawrence of Appleton and Joe of Milwaukee, and the mother, Mrs. Eva Umland of Appleton. Mr. Umland was a past grand knight of Knights of Columbus.


FIELD NOTES
Get in the Scrap!
Can we keep essential mills, factories, canneries and production lines supplied with belting, hose and other important industrial rubber goods during this war?
...and more important, will we be able to continue to make bullet-proof gas tanks on our fighting and bombing planes? Will our armies roll into action at 60 miles per hour on tires - or creep for the lack of them?
The answer is squarely up to you. The scrap rubber drive did not end on July 10. It only started then. Scout your plants - thoroughly - for any and all rubber scrap. Turn it in to your local collection agency - regularly! Your scrap rubber is needed to help win the war.
VICTORY before "VICTOR"
"Victor" has long been Pioneer's top brand ...the finest in conveyor belts and hose. The fine grades of crude rubber used in its manufacture, however, now must serve ships, planes and tanks almost exclusively. Meantime, skillful blending of age-resisting chemicals with allowable rubber enables Pioneer to continue producing high grade mechanical rubber goods to emergency specifications.
PIONEER RUBBER MILLS, 353 Sacramento St., San Francisco, Calif.
PIONEER
Job Tailored
CONVEYOR BELTS

Reduces "Time Out"

Stebbins "Knowledge" gained through fifty-eight years of designing, installing and servicing acid and corrosion-resistant linings in pulp and paper mills assures a trouble free installation.

There is a Stebbins Quality Lining for every lineable tank or vessel.

SEMCO

Stebbins Engineering Corporation

TEXTILE TOWER SEATTLE, WASHINGTON

Limit Rubber Roll Thickness

● The War Production Board on August 15th issued Amendment 15 to Supplementary Order M-15-b-1 establishing maximum thicknesses on all types of rubber rolls, effective as of that date. The order was received in Seattle August 19th by George G. Guild of the Huntington Rubber Mills, and immediately issued to the pulp and paper mills. The order establishes cover thicknesses as follows:

Press, smoothing press, size press and lumpbreaker, ¾-inch on rolls up to and including 24-inch core diameter—⅞-inch on rolls over 24-inch core diameter.

Waxing — all types, ¾-inch. Baby, monkey and primary presses, top rolls, ¾-inch and bottom rolls, ½-inch.

Suction press, ⅞-inch. Couch, including cylinder wet machine and extractor, 1¼-inch. Couch for deckers, thickeners, savealls and washers, ½-inch.

Felt, table, wire carrier and guide, ¼-inch. Worm felt, ¼-inch over-all. Draw cutters, wormed, ½-inch over-all. Coating, 1-inch.

On all types of rolls including and following suction press, only cores already in use may be covered. Embossing rolls shall not be rubber covered.

DEDICATED TO THE BIG TASK

PUGET SOUND POWER & LIGHT CO.

WANTED—Secondhand "Langston" or other Corrugated Machine for straw board or similar material machine to double face. Reply Box No. 13, care Pacific Pulp & Paper Industry, 71 Columbia Street, Seattle, Wash.

Leslie Visits Hoquiam Mill

● Donald S. Leslie, first vice president of the Hammermill Paper Company, Erie, Pa., visited the company's affiliated organization the Grays Harbor Pulp & Paper Company at Hoquiam, Washington, early in September.

He inspected the paper making operations with W. S. Lucey, vice president and general manager of the Hoquiam mill.

John Fulton On California Trip

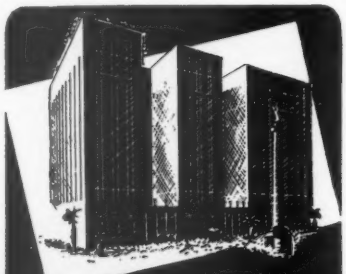
● John M. Fulton, manager of the Pacific Coast Supply Co., Portland, left September 7th for a several week's trip which will include all of the mills in California. Mr. Fulton will be accompanied by Hugh Bolger of the Pacific Coast Supply Company's San Francisco office.

Puget Sound Enters Six Bowling Teams

● Six teams will represent the Puget Sound Pulp in the Bellingham Industrial Bowling League, while another team of top-flight bowlers will be sponsored by the Company in the Major League. At a meeting held on August 30th, Walter Groves was elected President of the Pulp Mill bowlers. Groves is head painter for the mill.

Careless Matches Aid the Axis

● So foresters are reminding everyone who visits the woods this year. So far weather conditions have kept forest fire danger at a minimum but only a few days of hot weather will produce dangerous conditions. The only safe practice is to use care with matches and cigarettes when in the forest areas.



San Francisco's
largest and best located hotel
1000 ROOMS • 1000 BATHS
$4 one person, $6 two persons
MANAGEMENT DAN E. LONDON
HOTEL ST. FRANCIS
overlooking
UNION SQUARE

O. C. SCHOENWERK
Consulting Engineer
3240 LAKE SHORE DRIVE
CHICAGO, ILLINOIS
Pulp and Paper Mill
Design – Construction

PULP —
PERKINS-GOODWIN
COMPANY
Established 1846
30 Rockefeller Plaza, NEW YORK
Suite 3605
— PAPER

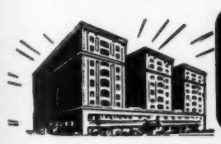
R. E. CHASE & CO.
TACOMA BLDG., TACOMA
BRANCHES IN
SEATTLE :: PORTLAND :: SPOKANE
EQUIPMENT FOR . . .
CHEMICAL ENGINEERING
STEAM POWER GENERATION
DUST CONTROL

Marshall and Barr
CONSULTING ENGINEERS
A Firm of West Coast Engineers, Experienced in PACIFIC COAST Problems of Mill Design, Operation and Supervision of Construction.
HARRY L. MARSHALL CHARLES M. BARR
2205-6 Exchange Building, Seattle, Washington

PULPWOOD CLEANING MACHINES
★ ★ ★ BARKERS ★ ★ ★
KNOT BORING and ROUTING MACHINES
CONCAVE KNIFE AND BROUTING BIT GRINDERS
★ ★ ★
STETSON-ROSS MACHINE CO.
SEATTLE, WASHINGTON

Hardy S. Ferguson & Co.
Consulting Engineers
200 Fifth Avenue, NEW YORK CITY
Hardy S. Ferguson—Member A.S.C.E., A.S.M.E., E.I.C.
Moses H. Teaze—Member A.S.M.E., E.I.C., A.S.C.E.
Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of
Pulp and Paper Mills and other Industrial Plants.
Steam and Hydro-electric Power Plants
Dams and other Hydraulic Structures.

The Pusey and Jones Corporation
Established 1848
WILMINGTON, DELAWARE

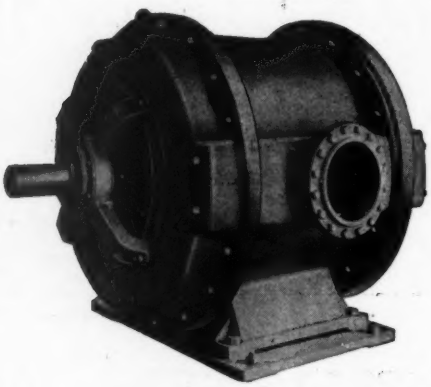
It's a Habit! . . . for PULP AND PAPER people to make the Multnomah their home while in Portland.

HOTEL MULTNOMAH
PORTLAND, OREGON

GEORGE F. HARDY
Consulting Engineer
305-309 Broadway, NEW YORK CITY, N. Y.
MEMBER—Am. Soc. C. E.—Am. Soc. M. E.—Eng. Inst. Can.
Consultation—Reports—Valuations—Estimates—Paper and Pulp Mills—Hydro-Electric and Steam Power Plants—Plans and Specifications.

Read Pacific Pulp & Paper Industry
to keep informed of the news of the Pacific Coast industry.
U. S., $4; Canada, $4.50 per year.
PACIFIC PULP & PAPER INDUSTRY
71 Columbia Street Seattle, Wash.

Chromium Corporation of America
CRODON
The Chrome Plate
LEONARD McMASTER, Pacific Bldg., PORTLAND
NEW YORK WATERBURY CLEVELAND CHICAGO

ONLY NASH VACUUM PUMPS HAVE ALL THESE FEATURES



One Moving Element. Non-pulsating Vacuum. No Internal Wearing Parts. No Internal Lubrication. Handles Liquid With Air. No Expert Attendance. Constant Efficiency. Low Maintenance Cost.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

"INFORMATION, *Please*"

Our government has a stupendous job to lick over night. *All the important facts* must be gathered about countless products and services and be related swiftly to one vast war effort. It is the obligation of every manufacturer to assist by stating clearly and completely what he has to offer in our unprecedented exigency. To promote this end, Lindsay policy continues to provide for increasing research facilities in point of both personnel and equipment.

THE LINDSAY WIRE WEAVING CO.

Serving the Paper Industry Since 1903
14001-14299 Aspinwall Ave., Cleveland

Lindsay **WIRES**
FOR PAPER MILLS

WOOL IS PRECIOUS

GUARD FELT LIFE CAREFULLY

ORR FELTS

THE ORR FELT & BLANKET CO.
PIQUA, OHIO

Pacific Coast Representative: Leonard McMaster, Pacific Bldg., Portland, Ore.

INDEX OF ADVERTISERS

A
Adams Flywheel Welding Shop 54
Alaskan Copper Works 54
American Potash & Chemical Co. 48
Appleton Wire Works 48
Appleton Woolen Mills 54
Asten-Hill Mfg. Co. 52

B
Bagley & Sewall Co. 54
Bauer Brothers Co., The 32
Beloit Iron Works 1
Black-Clawson Co., Divisions: Shartle Bros., Dilts Machine Works 2
Bulkley, Dunton Pulp Co. 4

C
Calco Chemical Division American Cyanamid Co. 25
Cameron Machine Co. 52
Chase & Co., R. E. 55
Chemipulp Process, Inc. 51
Chromium Corporation of America 55

D
Draper Brothers Co. 53
Du Pont de Nemours & Co., E. I. 21

E
Eastwood-Nealley Corp. 43
Edison Storage Battery Co. 54
Electric Steel Foundry Co. 52

F
Ferguson & Co., Hardy S. 55
Freeport Sulphur Co. 53

G
General Electric Co. 29
Great Western Division, The Dow Chemical Co. 31

H
Hardy, George F. 55
Hesse-Ersted Iron Works 51
Hooker Electrochemical Co. 49
Hotel Multnomah 55
Hotel St. Francis 46
Huyck & Sons Co., F. C. 26

I
Improved Paper Machinery Corporation 40
Instrument Laboratory, Inc. 54

J
Johnson Corporation, The 54

L
Lindsay Wire Weaving Co. 56
Lockport Felt Co. 47

M
Marshall & Barr 55
McMaster, Leonard 51
Merrick Scale Mfg. Co. 54
Monsanto Chemical Co. Inside Back Cover
Morey Paper Mill Supply Co. 50

N
Nash Engineering Co. 56
National Aniline Division Allied Chemical & Dye Corp. 50
Northwest Filter Co. 53
Northwest Lead Co. 54
Norton Co., The Outside Back Cover

O
Orr Felt & Blanket Co. 56

P
Pacific Coast Supply Co. 47
Pacific Gear & Tool Works 44
Pacific Gear Works 44
Pennsylvania Salt Mfg. Co. of Washington Inside Front Cover
Perkins Goodwin Co. 55
Pioneer Rubber Mills 45
Puget Sound Power & Light Co. 46
Puget Sound Pulp & Timber Co. 39
Pulp Bleaching Co. 54
Pusey & Jones Corp. 55

R
Rayonier Incorporated 22
Ross Engineering Corp., J. O. 54

S
Schoenwerk, O. C. 55
Shell Oil Co. 36
Shuler & Benninghofen 49
Sinclair Co., The 51
Soundview Pulp Co. 4
Stebbins Engineering Corp. 46
Stetson-Ross Machine Co. 55

W
Waterbury & Sons Co., H. 53
Western Gear Works 44
Western Precipitation Corp. 52
Weyerhaeuser Timber Co., Pulp Division 54